1954

REPORT

OF THE

BANGALORE DEVELOPMENT COMMITTEE

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PUBLICATIONS AT THE GOVERNMENT PRESS
1954

TABLE OF CONTENTS.

			PAGES.
CHAPTER	I.	Introductory	1—3
,,	II.	Brief history of Bangalore and its Municipal organisation ...	4—13
,,	III.	Growth of Bangalore and distribution of population. ...	14—20
,,	IV.	Housing conditions ...	21—26
,,	V.	Location of Industries ...	27—29
,,	VI.	A. Housing Development (Industrial)	30—34
		B. Housing Development (General)...	34—38
,,	VII.	Slums	39—47
,,	VIII.	Improvement and maintenance of Residential areas ...	48—50
,,	IX.	Educational Institutions ...	51—56
,,	X.	Administrative and Commercial Zones	57—60
,,	XI.	Open spaces and Recreational facilities	61—69
,,	XII.	Military lands	70—75
,,	XIII.	Communications and Transport facilities	76—86
,,	XIV.	Water Supply	87—94
,,	XV.	Underground drainage and Sewage disposal. ...	95—101
,,	XVI.	Plan of Greater Bangalore in outline	102—108
,,	XVII.	Planning Legislation ...	109—112
,,	XVIII.	Concluding observations ...	113—117

APPENDICES.

A.	G.O. No. L. 15125-36—I.T.B. 35-51-1, dated 18th March 1952, constituting the Bangalore Development Committee	119—122
B.	Note on General Principles of City Planning by Sri B. R. Manickam, B.E., M.A.S.E., M.A.S.P.O., Government Architect and Town Planning Officer ...	123—129
C.	Relation of area to population—Standards of Density	130—132
D.	List of Bore-wells sunk in the Bangalore Corporation	133—134
E.	List of Slum areas within the limits of the Bangalore City Corporation	135—137
F.	Plan of Greater Bangalore showing proposed land use and improvements to the Road System ...	...
G.	Plan showing the existing and the proposed Corporation boundaries, and green-belt in Greater Bangalore ...	

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REPORT OF THE BANGALORE DEVELOPMENT COMMITTEE.

CHAPTER I.

Introductory.

The City of Bangalore has grown very fast during the last two decades. With housing and other facilities available or planned for a population of about 4 lakhs, the City has had to accommodate nearly a million people. The result has been overcrowding and sporadic construction of houses which has produced slum conditions in some parts of the City. Planning both for the present and the future has become very urgent. Considering the situation in all its aspects, the Government of Mysore appointed a Committee designated "Bangalore Development Committee" to examine all connected problems and to draw up a comprehensive general plan of development both for the City of Bangalore and some of the adjoining rural areas which may be expected to become parts of Greater Bangalore. The Government Order, dated 18th March 1952, appointing the Committee is printed as Appendix A.

PERSONNEL OF THE COMMITTEE.

Chairman :

Pradhana Siromani Sri N. Madhava Rau, B.A., B.L., C.I.E.,
Retired Dewan of Mysore.

Vice-Chairman :

(1) Sri C. N. Narasinga Rao, B.A., B.L., : *Up to 31-5-1952.*
Sri K. Henjerappa, B.A., B.L. : *From 1-6-1952 to 13-10-1952.*
Sri R. Madhavan, B.E. : *From 10-11-1952.*
Chairman,
Bangalore City Improvement
Trust Board.

Members :

(2) Sri B. V. Lankappa, B.A., LL.B. : *Up to 12-1-1953.*
Sri P. Hanumanthiah : *From 13-1-1953.*
Mayor,
Bangalore City Corporation.

(3) Sri N. S. Hirannayya, M.A. : *Up to 20-5-1952.*
Sri Abu Baker, M.A. : *From 22-5-1952 to 12-10-1952.*
Sri K. Henjerappa, B.A., B.L. : *From 13-10-1952.*
Commissioner,
Bangalore City Corporation.

(4) Sri N. Neelakantappa, B.A., B.E., M.I.E. : *Up to 9-7-1952.*
Sri D. S. Venkanna, B.SC., B.E., M.I.E. : *From 9-7-1952 to 25-10-1952.*
Sri K. S. Gangadhara, B.E. : *From 26-10-1952.*
Chief Engineer in Mysore (Roads Buildings).

(5) Dr. T. Chaudrasekhariah, B.A., M.B.B.S.,
Director of Public Health in Mysore.

(6) Sri T. Rangamalliah, B SC.,
Deputy Commissioner,
Bangalore District.

(7) Sri B. R. Manickam, B.E., M.A.S.C.E., M.A.S.P.O.
Government Architect and
Town Planning Officer.

(8) Mr. G. H. Krumbiegel, F.R.H.S.

(9) Sri H. S. Seetharam, Member,
Bangalore City Corporation.

(10) Sri M. Palaniappan, B.A.,
Member, Legislative Assembly.

(11) Major M. S. Ahluwalia,
D.A.Q.M.G., Bangalore Sub-Area,
(Representative of the Defence Dept.,
Government of India).

At the suggestion of the Committee, the following Members were subsequently appointed :—

(12) Sri J. B. Mallaradhya, M.A.,
Census Commissioner.

(13) Sri E. V. Ganapati Iyer, B.SC.,
Director of Industries and Commerce.

(14) The President, Mysore Chamber of Commerce.

Secretary.—The Engineer Officer, Bangalore City Improvement Trust Board : Sri D. S. R. Rao, B.E., A.M.I.E.

Joint Secretary.—Sri C. G. Ramaiya, B.A., Retired Assistant Secretary to Government : (From 1st September 1952).

2. The following Sub-Committees were constituted by the Committee, for dealing with certain specified matters and formulating preliminary proposals for consideration by the Committee.

I. *Sub-Committee constituted at the Committee Meeting, dated 5th July 1952.*

To examine the existing road system and available transport facilities and recommend measures needed to improve them :—

Chairman :

(1) Sri N. V. Babu Reddy, B.A.,
Inspector-General of Police.

Members :

(2) Sri K. R. Madhava Rao, B.A., LL.B.
Chairman, City Bus Transport Company.

(3) Sri H. S. Seetharam,
Member, Bangalore City Corporation.

(4) Sri R. Madhavan, B.E., : *Up to 9-11-1952.*
Sri M. H, Manchigiah, B.E. : *10-11-1952.*
Engineer, Corporation of Bangalore.

(5) Sri D. S. R. Rao, B.E., I.M.E.,
Engineer Officer,
Bangalore City Improvement Trust Board.

II. *Sub-Committee constituted at the Committee Meeting, dated 25th July 1952.*

To examine the question of adequately providing open spaces, parks, playgrounds, etc., to review from this standpoint the layouts already prepared and to suggest locations for new shopping centres, etc :—

Chairman :

1. The Director of Public Health.

Members :

2. The Deputy Commissioner,
Bangalore District.
3. The Government Architect
and Town Planning Officer.
4. The Health Officer,
Bangalore City Corporation.
5. The Engineer,
Bangalore City Corporation.
6. The Engineer Officer,
Bangalore City Improvement Trust Board.
7. Mr. G. H. Krumbiegel.

3. The reports of the Sub-Committees were reviewed by the Committee and the proposals finally agreed to have been incorporated in the report in the appropriate chapters.

CHAPTER II.

Brief History of Bangalore and its Municipal Organization.

4. *Origin of Old City.*—The nucleus of the Bangalore Town was laid by Kempe Gowda, Palyagar of Magadi, in 1537. It consisted of a mud-fort at the site of the present Fort area, and a Pettah or residential locality with the present Doddapet Chowk as the Centre and the present Avenue (Sri Krishnarajendra) and Old Taluk Kacheri (Chickpet) Roads as the two principal intersecting streets. The Dharmambudhi Tank from which ducts were laid into the Pettah was the principal source of water supply to the Town. Four watch towers were constructed by Kempe Gowda at each of four cardinal points* of the City to mark the limits up to which he prophesied the City would extend in course of time. This prophesy has been more than fulfilled.

Even as early as in the 17th century, Bangalore was considered a place of military value and commercial importance. The various powers contending for dominion over southern India sought to secure possession of the town, which passed successively under the sway of the Mahrattas, the Bijapur Kings and the Mughals until in 1687, it was purchased by Chikka Devaraja Wadeyar for Rs. 3 lakhs. It was granted as a personal jagir to Haidar Ali who enlarged and rebuilt the fort. It is recorded that in 1760 he raised a loan of Rs. 4 lakhs from the sowcars of Bangalore, who were evidently doing flourishing business even in those days. On the capture of Bangalore by the British, they found evidence of a flourishing textile industry and trade in grains, and all coins of India were in circulation, their exchange rates being officially fixed once a month. In spite of all these signs of business activity and opulence and a cosmopolitan tendency which was already noticeable, the town was relatively small in size till the end of the 18th Century. In 1790, the Pettah occupied about three-fourths of a square mile and the Fort about 30 acres. The whole town might then have been about 2 square miles in area.

5. *Origin of the Civil Station.*—After the defeat and death of Tippu Sultan, some British troops were garrisoned in Seringapatam. But the climate of Seringapatam

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*1. Kempambudhi Tank Bund.
2. Lal-bagh Quarry.
3. Ulsoor Tank Bund.
4 Near the present Indian Institute of Science.

was so unhealthy that they had to be transferred to a healthier Station. The Madras Government (then in control of the Provincial Army) selected some lands near the City of Bangalore, and approached His Highness Sri Krishnaraja Wadeyar Bahadur III for permission to occupy them. This was readily granted and a vacant site near the village of Ulsoor was given to them for the accommodation of British Troops. It was occupied in 1807 by two British Regiments and barracks and other military buildings were soon erected on it. A civil population, which had been attracted by the trade and other opportunities for public and private employment offered by the presence of British troops, began to settle near the military lands. Grants of lands for building purposes were made to civilian applicants by the Mysore "Sirkar". The administration of the area was not affected by the presence of the British troops. Both the Military lands (which might be regarded as the Cantonment proper) and the Civil Station remained under the authority of the State. In the Cantonment and Civil Station, all persons not belonging to the Military were treated as subjects of the Mysore State. They paid taxes to the Mysore Government and their disputes, civil and criminal, were adjudicated upon by tribunals set up by that Government. This arrangement remained in force till the area was made over to the British Government in 1881.

From 1831, the principal departments of administration were accommodated in the Fort until 1868, when the Public Offices buildings in Cubbon Park were completed. The Fort was handed over to the Civil authorities on 2nd October 1888 and it has ceased to have any military or other special significance. The walls have been pulled down and the mote around the Fort filled in and several hospitals and other buildings have been built on the old site of the Fort, which is now incorporated as a regular part of the City.

On the Rendition of Mysore in 1881, the Cantonment with the adjoining Civil Area was made over to the British Government as an "Assigned Tract" for purposes of a British Cantonment, and thereafter it was treated as an independent area under the direct control of the Government of India.

6. *History of the Municipality.*—The Municipality dates from 27th March 1862 when a number of leading

citizens formed themselves into a Board binding themselves to abide by Act XXVI of 1850. The Cantonment and the Civil Station were constituted into a single municipal area under the name of the "Cantonment Municipality" and a separate Municipality was set up for the Pettah or City proper. The burden of maintaining two independent Municipal Institutions over what was in fact a single City seems to have been felt very early. It was proposed in 1867 to amalgamate the two Institutions but for some reason this proposal did not materialise.

The Municipal Regulation of 1871 came into force on 1st April 1871. Among other things it provided a number of Municipal Commissioners and a better conservancy system. A full-time President was appointed in 1871. The following paragraph occurs in the General Administration Report for 1872-73 ;

> "In Bangalore, where the Municipal operations are conducted on a large scale and their control and direction require special attention and much labour, the President is paid Rs. 700 per month, which is defrayed by the Municipalities of the Cantonment and Town of Bangalore in the proportion of two-thirds and one-third respectively."

On 12th May 1862 orders were issued directing the establishment of Municipal Funds for the sanitary improvements and watch and ward requirements of towns. The system of Municipal taxation in the State was thoroughly revised in 1879.

The Municipality of the Cantonment (styled the Civil and Military Station of Bangalore) was transferred to the jurisdiction of the Resident after the Rendition in 1881, and the City Municipality was administered separately under the control of the State authorities, subject to such changes in law as were introduced from time to time by the respective Governments.

On the retrocession of the areas of the Civil and Military Station to the State Government in 1947, the Civil Station Municipality (old Cantonment) came under the jurisdiction of the State Government. At that time, the City Municipality was governed by the provisions of the Mysore City Municipalities Act, 1933, while the Civil Station Municipality was governed by the Bangalore Municipal Law, 1897. The two Municipalities were amalgamated under one statutory body by the City of Bangalore Municipal Corporation Act, 1949. Thus for a period of nearly 50 years the two Municipalities—the City

and the Civil Station—developed as two separate and distinct bodies. Geographically the two areas are contiguous and have common problems to deal with, and the bringing together of the two bodies under a single administration was a logical arrangement.

7. *Water Supply and Electric Power.*—Water supply from Hessarghatta tank was arranged in 1896 (both for the City as well as the Civil and Military Station) and electricity for lighting and power was switched on in 1905. The supply of water was augmented by the construction of a larger Reservoir across the Arkavati at Thippagondanahalli and water is being supplied therefrom since 1933.

8. *Railway Connection.*—Bangalore was first linked by railway to Madras in 1864 when the broad-gauge line was extended to Bangalore Cantonment. Railway connection with Mysore was established in 1882, with Harihar in 1889 and with Guntakal in 1893.

9. *Town Improvement Committees and the City Improvement Trust Board.*—The Government of Mysore have always taken great interest in the improvement of the City, and some of the important suburban extensions as well as the water supply and drainage works of the City were carried out by Government agencies, the capital cost being met from State funds. Special Committees were appointed by Government from time to time to prepare and sometimes to carry out improvement schemes in collaboration with Municipal authorities.

A Committee set up in 1889 (and reconstituted in 1892) was entrusted with the task, among others, of developing the "Western" and "Northern" Extensions. The latter, which covered a portion of High Ground, was intended to provide bungalow sites for the senior officers of the State Government. In 1895, the Committee was dissolved and the extensions were transferred to the charge of the Municipal Board.

Following the outbreak of plague in 1898, Basavangudi and Malleswaram were laid out. Initially, they covered an area of 1,000 acres and were designed to provide accommodation eventually for 50,000 people.

The City Improvement Committee was revived in 1908, to draw up a comprehensive scheme of improvements for the old city, but this work made little progress for want of expert assistance in Town Planning and of a

City map based on a correct survey. Government, therefore, reconstituted the Committee in December 1913 by the addition of Engineer Officers so as to afford the necessary technical help. This Committee functioned, with various changes of personnel, till 1922. It was asked to have a correct map of the City prepared after making the necessary surveys and to formulate schemes of improvement for execution by the Municipality or by Government, as might be decided in each case.

The schemes were to include—

(*a*) Provision for building sites; for open spaces and parks and children's play-grounds ;

(*b*) Improvements of drainage, maintenance of open spaces free from rank vegetation and always in a sanitary condition.

(*c*) Allotment of sites for markets, Municipal buildings, schools and other public institutions ;

(*d*) Provision for future extensions of the City for the next ten and twenty-five years, respectively ;

(*e*) Improvement of communications by short-circuiting traffic on existing roads so as to give easy access to all parts of the City.

The schemes recommended by the Committee were estimated to cost Rs. 14 lakhs, while the drainage works for the old City involved a further estimated outlay of Rs. 10 lakhs. Government agreed to contribute *two thirds* of the cost of the City Improvement Schemes and *one-half* of the drainage works, if the Municipal Council would arrange to bear the remainder.

The following were some of the important works carried out partly or wholly during the period (1908-1922) in which this City Improvement Committee was in existence : —

(1) A regular and full survey of the City and the Extensions was completed and a correct map of the City with full details was prepared as also a general index map.

(2) A new extension (Visveswarapuram) was developed and laid out as an entirely self-supporting scheme at a cost of about Rs. 7 lakhs.

(3) The construction of a New General Market made substantial progress, works to the extent of Rs. 3,30,000 having been executed out of an estimated cost of 4½ lakhs.

(4) Laying out the Hoskote Road as a shop street.

(5) Plans and estimates were got ready for a Town Hall but work had to lie over owing to financial stringency.

(6) The site first selected for the Municipal Office having been found defective, revised plans and designs were got ready for constructing it on another site.

(7) A Scheme for City drainage was prepared which was estimated to cost Rs. 19 lakhs. The work, however, made slow progress owing mainly to financial difficulties.

Note.—The position was reviewed and a comprehensive scheme for an Underground Drainage system in the Bangalore City Municipality at an estimated cost of Rs. 41,24,441 was sanctioned in November 1941.

(8) In all, a sum of Rs. 11½ lakhs was spent on Bangalore City Improvements during the last eight years of the tenure of the Committee.

10. *City Improvement Trust Board.*—The Committees referred to above were constituted by executive orders of Government, for carrying out specific items of improvement. It was only in 1945 that a statutory body was constituted (by Act V of 1945) with the designation "Board of Trustees for the Improvement of the City of Bangalore" with special powers to carry out the improvement and future expansion of the City of Bangalore. The need for the creation of this Board was thus explained :

> "Several improvement works in Bangalore City including the formation of certain extensions are being carried out by Government and are financed by Government and the maintenance of these extensions presents some difficulties. In view of the enhanced grants sanctioned for City Improvement works in Bangalore, it is necessary to have a suitable agency to ensure that the works for which grants are made are carried out expeditiously. The need is felt for an Improvement Trust Board, similar to the one in Mysore City, with statutory powers. The Bill drafted for the purpose provides for the constitution of a Board which is empowered to draw up detailed Schemes for the improvement or expansion of the various parts of the City. The Board is authorised to execute such Schemes only after the views of the Bangalore City Municipality have been considered and sanction of Government has been obtained thereto."

After the amalgamation of the Civil Station Municipality with the City Municipality under the name "The Corporation of the City of Bangalore", in 1949, the jurisdiction of the Trust Board has been extended to

include the area of the Civil Station Municipality also, as well as all areas within a distance of three miles from the Municipal limits of the City and the Civil Station.

11. *Review of the work done by the City Improvement Trust Board.*—During the past 8 years of its existence, the Trust Board has done a lot of pioneering work towards the solution of various problems like housing, improvement of slum areas, etc. The activities of the Board may be broadly classified under the following heads :—

(1) Formation of new residential extensions in suitable localities on approved modern lines ;

(2) Construction of houses to a limited extent for middle and lower class persons ;

(3) Formation of an Industrial Suburb for locating big and small industries ;

(4) Formation of an industrial housing area for workers in close proximity to their place of work ;

(5) Construction of cheap houses for the working classes ;

(6) Improvement of slum areas ; and

(7) Preparation and execution of underground drainage scheme for Bangalore City.

A brief resume of the work done so far is noted below :—

1. Formation of Residential Extensions.

Some of the important residential extensions laid out and the extent of accommodation they are expected to provide are mentioned below :—

	No. of sites
(i) Jayanagar (in the South)	5,750
(ii) Wilson Garden (in the South-East)	480
(iii) Vyali Kaval (in the North)	800
(iv) Kumara Park (West) Extension (in the Centre)	270
(v) Jayamahal Extension (in the North-East)	130
(vi) Sunkenahalli Extension (in the South)	260
Total ...	7,690

About 1,777 acres have been acquired for the formation of the above residential extensions.

These layouts have been worked out on the basis of their being generally self-supporting, sites for poorer classes being priced at a somewhat lower rate than those meant for richer persons. The extensions are intended for meeting the needs of all income groups and all normal amenities, such as, well-laid roads, water supply, electric lighting, under-ground drainage, parks and playgrounds, public buildings etc., are provided for.

II Construction of Houses.

About 150 houses have been constructed in Kumara Park (West) Extension for the lower income groups. The cost ranges between Rs. 6,000 and Rs. 12,000 for each house including the cost of site.

III. Industrial Suburb—(Rajaji Nagar).

An extent of 363 acres has been acquired for the formation of the industrial suburb. With a view to shift some of the existing industries from the congested parts of the City, as also to locate new industries, this extension has been formed. About 148 sites measuring half an acre to 4 acres each have been laid out. Some industries like Messrs. Kirloskars, the Mysore Electro-Chemicals have already started their concerns in this area.

IV. Formation of Industrial Housing Area.

An extent of 377 acres has been acquired for the lay-out of Industrial Housing area. About 3,200 sites of dimensions varying from $25' \times 40'$ to $45' \times 90'$ are formed. One noticeable feature of the planning of the Industrial Suburb and Housing Area is that the factory areas alternate with the housing areas. In the housing area, provision has been made for some of the non-labouring classes also being accommodated so as to avoid segregation of labour.

V. Construction of Houses for Workers.

Two hundred and forty houses for labourers, made of soil-cement bricks with reinforced concrete roofing, have been constructed.

VI. Improvement of Slum Areas.

A general survey of the existing insanitary areas has been conducted with the cooperation of the Corporation

authorities, and schemes have been prepared for their improvement. The following works are in progress:—

(i) Sultanpet—slum. The slum in this crowded place has been acquired and a park laid out;

(ii) Slum opposite to 'Stree Samaj' in Chamarajapet—Acquisition of this area is in progress.

(iii) Anjanappa Garden. Acquisition proceedings are in progress.

(iv) Sampigehalli Slum.—A small residential area is being formed to accommodate the slum dwellers in Gangamachery by the side of Sir K. P. Puttanna Chetty Town Hall.

The following schemes have been sanctioned:—

(1) Improving the slum in Doddabylkhana,

(2) Improving the slum behind the Water Supply Division (Kenchappa Gardens),

(3) Improving the slum in Ramachandrapuram, Lakshminarayanapuram and Maruthi Extensions.

(4) Ramakrishna Mutt Extension.

Several other schemes are also under investigation.

VII. Underground drainage.

The Improvement Trust Board is entrusted with this work. Over 130 miles of sewers have so far been laid. A Special Committee appointed by the Government has submitted its report formulating proposals for treatment and disposal of sewage at an estimated cost of about one crore of rupees. A part of the scheme for disposal of sewage of Vrishabavathi Valley has been now sanctioned at a cost of Rs. 8.2 lakhs. The work is about to be taken up for execution.

It may be stated that (except in respect of underground drainage) the Trust Board has so far been mainly concerned only with the formation of layouts and sale of sites to the public, and not much of construction has been undertaken directly by it. The aggregate cost of the sanctioned schemes so far formulated by the Board amounts to about Rs. 2.12 crores, against which Rs. 75 lakhs have been already expended. The rate of progress of work, however, depends largely on the funds that

Government are able to provide every year for this purpose. The speedy completion of the layouts and their utilisation by the public also depends on the expansion of water supply facilities, the ready availability of materials, general conditions of the money market and capacity of the people to invest the necessary funds.

From the above facts, it will be observed that the City Improvement Trust Board has already made a good beginning towards the development of Greater Bangalore, on the lines envisaged by this Committee.

CHAPTER III

Growth of Bangalore and distribution of population.

12. The growth of Bangalore has been almost phenomenal, particularly in recent years, as will be seen from the following table of population of the City and the Civil Station from 1881 to 1951 :

	City	*Civil Station*	*Total*
1881 ...	62,317	93,540	1,55,857
1891 ...	80,285	1,00,081	1,80,366
1901 ...	69,447	89,529	1,58,976
1911 ...	88,651	1,00,834	1,89,485
1921 ...	1,18,556	1,18,940	2,37,496
1931 ...	1,72,357	1,34,113	3,06,470
1941 ...	2,48,331	1,58,426	4,06,737
1951 ...	5,00,786	2,78,191	7,78,977

	In 1901	*In 1951*
Area of the whole City, including the Civil Station.	22·76 sq.miles. (14,566 acres)	25·41 sq.miles. (16,262 acres)

While the area of the Civil Station has not varied much and has remained at about 13 square miles throughout, that of the City has increased from 8·25 square miles in 1891 to 12·41 square miles in 1951. There was a decrease in population between the years 1891 and 1901 due to the plague epidemic, but this was more than made up in the next decade. There has been a steady increase in population in all the other decades particularly during the last decade. Bangalore is now the seventh largest City in India.

It may be noted that between 1901 and 1951, while the total area of the whole City (including the Civil Station) increased by 12 per cent, the population increased by 400 per cent during that period.

13. The popularity of Bangalore is due to several causes :

(i) Situated some 3,000 feet above sea-level, Bangalore has a salubrious climate with no extremes of temperature at any time of the year.

(ii) Being the administrative centre of the State and also an important military centre, it gives employment to a large number of people.

(iii) It is centrally situated for South India and is well served with railway, air and other communications ;

(iv) It has a protected water-supply and underground drainage, electric power for lighting as well as for industrial purposes, good medical and educational facilities, well-laid out parks and other civic amenities.

(v) Several industries, big and small, have found it convenient to establish themselves here, as a result of the liberal policy followed by the State Government in encouraging industries.

(vi) It is one of the few places that is thought of for the location of new institutions and industrial concerns of an All-India nature. Nearly half a century ago, it was selected as the most suitable place for the Indian Institute of Science. The Hindustan Aircraft Co. and the Telephone Industries, Ltd., were established in the neighbourhood of Bangalore a few years ago, and another large factory, *viz.*, the Machine Tools Factory, is under construction near-by.

(vii) Ex-rulers of States, Zamindars and other wealthy persons from outside seek to own extensive residential properties here.

(viii) A fairly large population of Europeans and Anglo-Indians have settled down on account of the agreeable climate and certain historical circumstances.

(ix) The general tendency of the persons who migrated to the City from rural parts during the war period (on account of additional sources of employment available, etc.,) to settle down here has considerably added to the congestion.

(x) Economic conditions in neighbouring Provinces have at times given an impetus to migration of persons from those areas into Bangalore adding to the floating population of the City. Persons who come here temporarily at first show a tendency to stay on permanently. The City contains also a small refugee population.

The increase in population has been relatively more rapid in the City than in the Civil Area in view of the former being the administrative headquarters of the State, the facilities offered by the State Government for the starting of new industries and wider scope for employment.

14. *Population Trends.*—The population of the City within the Corporation limits according to the latest Census is about 8 lakhs. In normal conditions, in a

healthy City like Bangalore, population increases by 10 to 15 per cent per decade by mere preponderance of births over deaths. Added to this, is the immigration of people from the rural areas and from outside the State, which has been going on for several decades. Assuming an average rate of 12½ per cent increase per decade, the population of the coming years may be calculated as below :—

1951	...	...	8,00,000
1961	...	...	9,00,000
1971	...	...	10,11,000
1981	...	...	11,40,000
1991	...	...	12,80,000
2001	...	...	14,40,000
2011	...	...	16,20,000
2021	...	...	18,20,000
2031	...	...	20,00,000

Thus it may be expected that under ordinary circumstances the City's population may reach 2 million in about 80 years. Following other industrial developments which have recently taken place, a Machine Tool Factory is being put up, which, when fully developed, is expected to employ a large number of persons. The starting of a factory to manufacture Wireless equipment has just been announced and it is likely that other industrial units, large and small, will be started within the next 10 to 30 years. These factors and the probable choice of Bangalore as the capital of the proposed State of United Karnataka may contribute to the speedier growth of population of Bangalore and the two million mark may be reached much earlier, in say 30-40 years. Bangalore is bound to grow to a city of big proportions, unless definite brakes are put to arrest its growth, by the State Government, by not permitting the starting of any new big industries in and around Bangalore, by decentralisation of Government Offices, etc.

15. *Density of Population in Bangalore.*—According to accepted standards of the present day, any part of this City where the population exceeds 100 persons per acre may be said to be showing signs of congestion, if it is not already over-crowded. So far as the City Extensions are concerned, a maximum density of 40 to 50 persons per acre may be regarded as a reasonable target.

The area of the City at present is 12·41 sq.miles and that of the Civil Station is 13·111 sq.miles, or 25·526

sq.miles (16,336 acres) in all. According to the Census of 1951, the total population of Bangalore is 7,78,977, the City portion containing 5,00,786 and the Civil Station 2,78,191.

This would mean an average density of 63 persons per acre in the City Area, and 33 persons per acre in the Civil Station. These figures may not at first sight appear to be abnormal. But it has to be remembered that there are large open spaces both in the City and the Civil Station which are not available for residential purposes. One such open space in the centre consists of the Parade Ground, the Sampangi Tank, the Cubbon Park, Museum, Public Offices and the other Government Offices, the St. Martha's Hospital, the University Buildings, the Jail, the Race Course, the Residency and the Golf course. The Palace, the Palace Orchard, Beaufort and Jayamahal form another block of open space in the north. The two together are computed to be 2·5 sq. miles. The Dharmambudhi Tank, the Agrahara Tank, the Kempambudhi Tank, the Ulsoor and the other Tanks in the Civil and Military Station, Lalbagh and Lalbagh Tank, the Narasimharaja Boulevard, Parvathi Boulevard, Sir M. N. Krishna Rao Park, the Bull Temple Maidan and the Shankar Mutt Maidan account for another 1·12 square miles. There are agricultural lands not only along the Municipal boundaries, but (i) between Kalasipalya, Mavalli and the Mission Compound and (ii) to the east of Lalbagh Road in the south; (iii) between Malleswaram, Ranganathapura, Guttahalli and Seshadripuram in the north, (iv) on the other side of the Yeshavanthapur Railway line in the west; and (v) towards the Mental Hospital in the east. The area of these lands is 0·6 square miles. Large extents in the Civil and Military Station are taken up for military purposes between Hosur Road and Nilasandra Road and to the east of Lower Agaram Road and to the south and north of Madras Road. These occupy 2·4 square miles. The uninhabited areas alone thus take up altogether 6·62 square miles out of a total of 25·56 square miles leaving a net residential area of 19 square miles accommodating a population of nearly 8 lakhs. This population is unevenly distributed over the different parts of the City, which exhibit varying degrees of density ranging from 1·22 (High Ground) to 518 (Anjaneya Temple) dersons per acre.

Bangalore is at present divided into 50 divisions for purposes of Municipal administration, the City area comprising 31 divisions and the Civil area 19 divisions. Out of these 50 divisions, the density exceeds 100 persons per acre in the undermentioned 17 divisions:—

	No. of Division	*Locality*	*Density per acre*
		CITY.	
Total population of these 1,96,901	9	Kemmangundi	294
	10	Chickpet	342
	11	Ramaswamy Temple ...	440
	13	Kasi Visweswara Temple ...	234
	14	K. R. Market Road ...	290
	15	Super Talkies	131
	16	Chamarajpet West ...	139
	18	Kalasipalyam ...	133
	26	Dharmarayaswami Temple ...	248
	27	Anjaneya Temple ...	518
	28	Tharamandalpet ...	345
		CIVIL STATION.	
Total population of these 91,896.	38	Ulsoor	147
	41	Bamboo Bazaar	185
	42	Central Bazaar	394
	43	Hospital	153
	44	Blackpalli	247
	45	Broadway	222

It will thus be seen that nearly 40 per cent of the population of the City and 33 per cent of that of the Civil Station live in congested areas.

The remaining portions of the City may be classified as below, as areas of medium density and areas of low density, respectively.

(a) *Areas of medium density*, i.e., *with* 50 *to* 100 *persons per acre.*

Division No.	*Name of Division*	*Density*
3	Srirampur	76·70
5	Labour Colony	75·87
6	Seshadripuram	93·10
7	Subhas Nagar	51·26
8	Kempapur Agrahar	53·24
12	Gandhinagar	66·40
17	Chamarajpet East	87·22
19	Gavipur Guttahalli	57·37
20	Shankarapuram	51·63
21	Visweswarapuram	100·10
22	Bull Temple	74·48
40	Sivanchetty Garden	85·48

(b) *Areas of low density*, i.e., *with less than 50 persons per acre.*

Division No.	*Name of Division*	*Density*
1	Malleswaram West	40·80
2	Malleswaram East	31·90
3	Ramachandrapuram	42·60
23	Basavangudi East	32·67
24	Mavalli	33·67
25	Town Hall	43·08
29	Cubbonpet	28·42
30	High Grounds	1·22
31	Palace Guttahalli...	26·29
32	Benson Town	25·23
33	Frazer Town	44·67
34	St. John's Hall	34·70
35	Cox Town	20·33
36	Murphy Town	13·22
37	Jaughpalyam	7·38
39	Commercial Street	37·36
46	Tasker Town	10·43
47	Mc. Iver Town	9·53
48	Shoolay	41·35
49	Richmond Town	30·97
50	Austin Town	36·99

It may be noted that in working out the above averages, open spaces reserved for community and other special purposes were not excluded, as their area could not be separately ascertained for each Municipal Division. The actual density per inhabited acre would come to a higher figure in each case. Moreover, even some of the sparsely populated divisions contain pockets of high density.

The most crowded areas mentioned in para 14 were parts of old City Municipal Divisions II, III, IV, V, VI and VII which have shown increasing density of population from decade to decade, as will appear from the following table :—

	1901	*1911*	*1921*	*1931*	*1941*	*1951*
II Division	13,257	18,020	23,415	27,687	32,299	55,269
III Division	17,418	23,577	30,578	38,227	49,317	1,17,922
IV Division	10,857	13,233	17,344	19,855	25,539	41,162
V Division	4,802	5,346	7,015	8,487	12,178	18,302
VI Division	10,341	7,728	9,643	15,819	26,356	69,725
VII Division	6,080	8,584	11,621	21,548	30,692	47,593

Some of these areas also contain a relatively large proportion of persons who depend upon " Industry " for their livelihood.

Apart from these areas of the old City, some of the Extensions contain populations far in excess of what they were designed to accommodate.

For example, while according to the original layout, Chamarajpet consisted of about 300 acres and 1,400 sites, the area and population of the Chamarajpet Wards according to the Census of 1951 were :—

	Area of the Ward	*Houses*	*Households*
Chamarajpet West	177 Acres	1,742	3,841
East	250 ,,	1,903	3,094
	427 acres	3,645	6,935

Making allowance for the fact that some additions might have been sanctioned to the original layout later and that the area of the Wards adopted for the Census tables includes some of the surrounding open lands not included in the layout of the Extension, the number of houses and households (3,645 and 6,935 respectively) now located in the area is disproportionately high, as compared with the number of sites (1,400) originally laid-out. It is apparent that more than one house has been allowed to be built on a site, and each house contains on the average two households.

Visveswarapuram (which has an average density of 100·10 persons per acre) and Seshadripuram (average density 93·10) are also becoming congested.

CHAPTER IV.

Housing Conditions.

16. A detailed survey of housing conditions in the Cities of this State was conducted in connection with the Census of 1941. The results of this survey are summarised in a Note by Mr. P. H. Krishna Rao, Census Superintendent, which forms Appendix-I to the Census Report of 1941. Comparing conditions in Bangalore City with those in the Kolar Gold Fields and the Civil and Military Station, Mr. Krishna Rao says :—

> " It is Bangalore City that is most badly off in the matter of housing. Out of 48,606 families in Bangalore, 19,742 have less than 100 sq. feet to live in and another 17,261 have more than 100 but less than 300.
>
> In other words, more than 75 per cent of the families in Bangalore are ' poor ', or ' very poor ', and the floor space available to them is very small indeed. The conditions of life may be imagined when it is realised that the average number of persons in a family is 4·6 and there are instances of 8 or 10 people occupying a house of less than 100 sq.feet in extent. The whole family cannot even sit for their meals together, let alone sleep in the house."

17. Similar information on housing is unfortunately not available in connection with the 1951 census. But it is obvious that the situation has considerably worsened during the past decade. During this period (1941-51), the population has increased at the rate of 10 per cent per year in the City area and of 7·5 per cent in the Civil Station. But there was practically no new house building by private effort or otherwise during the war, and in the post-war period it has been very limited. Precise information as to the number of new houses built could not be secured, but the fact that only 2,574 licenses for house building (including additions and alterations) were issued by the Bangalore Corporation during the years 1950-51 and 1951-52, shows how little is being done to cope with the problem. Considering the pressure of a growing population on house accommodation which has been relatively static, it is not surprising to find that the average number of persons in a family which was computed at 4·6 in 1941 is shown to be 6·33 in the 1951 Census. This does not mean that people are rearing larger families but that they are sharing their living accommodation with guests or visitors.

The latest Census contains the following particulars :—

		Population	*No. of houses*	*No. of households*
1. City	...	5,00,786	47,960	79,499
2. Civil Station	...	2,78,191	36,609	43,447
Total	...	7,78,977	84,569	1,22,946

Out of these 84,569 houses, at least 15,000 are huts and sheds in insanitary conditions and a detailed survey may disclose many other houses which have to be condemned as not satisfying minimum health standards. This may leave not more than 60,000 houses available for housing the existing 1,23,000 households, containing on the average 6½ persons per household. The shortage in housing accommodation for the middle and lower income groups is thus of the order of 60,000. This includes the requirements of Industrial labour also. It is estimated that about 40,000 industrial workers have to be provided with proper housing.

18. Considerable portions of Bangalore are the result of planned development. From 1890 a number of Extensions have been laid out in the City by the Government or the Municipal authorities and latterly by the City Improvement Trust Board, to meet the need for house-sites of a rapidly growing population. The following is a list of the Town Extensions so far planned and laid out :—

(*a*) Extensions in the City Area.

		Area in acres	*No. of sites*
1892	Chamarajpet	280	1,368
	Seshadripuram	26	198
1898	Basavangudi	703	1,862
	Malleswaram	304	620
1908	Shankarapuram	154	150
1915	Gavipuram, Srirampuram ...	100	500
1918	Visweswarapuram	93	467
1923	Gavipur-Guttahalli ...	...	700
1925	Yenkatarangapuram ...		
1927	Kalasipalyam		
1930	Gandhinagar		
1931-41	Bull Temple Road ...	...	221
	Malleswaram link Road ...	...	...
	Subedar Chattram Road ...	23¼	143
	Wilson Gardens	...	479
	Narasimharaja Colony. ...	...	...
	Kumara Park East... ...	...	...

Extensions formed in 1941-51 by the City Improvement Trust Board.

	Area in acres	*No. of sites*
Kumara Park West	48	270
Vyalikaval	77	780
Sunkenahalli	14	262
Jayamahal	41	129
Jayanagar, in Corporation limits ...	198	878
Jayanagar, beyond Corporation limits ...	1,064	4,876
Industrial Suburb (Housing area) ...	363	3,210

Corporation layouts.—

Kothandaramapuram.
Swimming Pool Extension.
Journalist Colony.
Kalasipalyam new lay-out.

N.B.—In addition to these, many private layouts have been formed.

(*b*) Extensions in the Civil Station Area.

In the Civil Station, similarly, a number of Town Extensions have been laid out from time to time and in addition, a substantial amount of house-building was undertaken by the Municipal authorities with the aid of generous grants provided from the revenues of the Assigned Area. A brief account of the work done in this behalf is noted below :

In 1906, the Government of India gave a grant of Rs. 1,00,000 for relief of congestion in the Civil Station. Of the several crowded bazaar areas, Blackpally was selected as it was very congested and in close proximity to the Military Barracks. By 1910, 273 houses were acquired and demolished in Blackpally at a cost of Rs. 1·15 lakhs. House-owners, not evicted from the area, voluntarily improved 217 houses. For the evicted persons, land to the extent of 50·35 acres in the northern part of Civil and Military Station in Papureddypalyam was acquired and an extension now called Fraser Town was laid out. The work began at the extension actually in 1906. The plots of land were offered for sale to the public. Movement of the population from the congested area to the new extension was encouraged. Of the 470 plots in the new extension the Commission retained 64 in its possession. The Municipal Commission itself proposed to build small rat-proof houses to be let out to poorer classes.

The Commission made a beginning with housing its staff of sweepers and scavengers in 1901 and by 1914-15 had constructed 86 rooms in Knoxpet. By 1920, the Commission had owned 217 houses in various parts of the Station (Wheeler Road 108, Thimmiah Road 37, Puduparacherry 21, Knoxpet 31 and Robertson Road 20). Owing to the proposed extension towards Fraser Town between Wheeler Road and Bangalore East Railway Station, the 108 houses at Wheeler Road were removed and 132 houses of a bigger and better type were constructed in various places in the Station, *i.e.*, 44 to the North and South of Robertson Road, 24 in Bore-bank Road, 32 in Upper Knoxpet and 32 in Puduparacherry. These were constructed out of the grant of four lakhs made by the Government of India for the relief of congestion in Civil and Military Station.

In 1920, the Commission proposed to deal on a large scale with the problem of housing harijans, by constructing settlements in various parts of the Station. By July 1922, 132 houses were built in Knoxpet. In the same year a scheme for housing the poor in Ookadpalyam was taken up. Acquisition of land at Nilasandra for the purpose at a cost of Rs. 20,000 was sanctioned by the Resident. The complete scheme was estimated to cost about Rs. 7,25,162 and provide for 130 double houses, 268 single houses, besides 23 blocks consisting of 67 double storeyed buildings for poor Europeans and Anglo-Indians. By 1924-25, the model houses for the poor at Knoxpet and Austin Town were completed.

With a view to provide housing for middle classes, the Municipal Commission in 1914-15, built a settlement of 80 rat-proof houses on Robertson Road. The houses were of better type, chiefly to accommodate evicted persons from the Thoppa Mudaliar and Dharmaraja Street Block, which was under acquisition. This settlement had three types of rat-proof houses, totalling 80 and was built at a cost of Rs. 46,908 on land in possession of the Commission. These houses were rented out at moderate rents of Rs. 3-8-0 and Rs. 2-8-0.

Extensions like Fraser Town, Richards Town, Cox Town, Tasker Town, were later laid out for the middle classes. In 1911, the Municipal Commission resolved to acquire land measuring nearly 48 acres north of Fraser Town with an idea to lay out 102 plots to be sold to private persons to remove congestion and afford proper

dwellings for middle class people. The acquisition was completed in 1912. The Extension is now known as Richards Town.

In 1922-23, the old Military lines, known as Cubbon lines, were acquired. The area measured about 66 acres. A diagonal road 60' wide was constructed from the junction of Chandi Chowk Road to Cunningham Road and the triangular plot of land of about 2 acres was left for the Gosha Hospital building and the land north of this road was reserved for better class houses. This area is now called Tasker Town. The land measuring 10 acres to the east of Blackpally Road was reserved for a large covered Market. (Russel Market since constructed.)

19. The population has been increasing at a rate which has made all these efforts at orderly development wholly inadequate. The demand for housing accommodation is so great that people are building on any vacant land that is available, and huts and houses are being constructed, often without needful permission, on strips of so-called " revenue lands " in the midst of the City. It is said that some 11,000 families have found improvised accommodation in such structures.

20. In laying out some of the extensions, the need for leaving some open space between large blocks of built up areas has not been kept in view and much agricultural land which might have served as green strips has been converted into building sites.

The defects in the initial layout of the earlier extensions are aggravated by lack of careful maintenance and strict control. Some of these areas are over-built and have ceased to be the comfortable residential areas that they were some years ago. Shops and Bazaars have been built on important roads, and open spaces utilised for workshops, garages, and storage yards.

21. The main contribution to the solution of the City's housing problem so far made by the State and the Municipal authorities has been the development of land and the provision of house sites in the extensions for sale to the public. In addition, the State and the Central Governments have built quarters for the Police and Military Forces, while the two Municipalities have provided quarters for some 617 members of their conservancy staff. This has been done more on grounds of

administrative convenience than as a measure of civic relief.

A scheme of house building advances for Government servants has been long in operation in Bangalore City. Under this scheme a number of persons were enabled to construct houses for their own residence in the several City Extensions. But with the increasing cost of house construction, these advances are proving less helpful now than they were in the past.

The following is a summary of housing activities carried out or financed by House Building Co-operative Societies.

Besides the Mysore Provincial Co-operative House Building Corporation, which is a Central institution for the State, there are 15 House Building Societies in Bangalore—13 in the City and 2 in the Civil Station. An examination of the activities of these institutions shows that of these 15 societies, only two, *viz.*, the Bangalore City House Building Co-operative Society in Chamarajpet and the Chickpet House Building Co-operative Society have during the past 5 years advanced loans in 220 and 186 cases, respectively, towards house building, while the cases dealt with by all the other institutions do not exceed 100. It is possible that in some cases more than one loan may have been advanced with reference to a single house.

22. It will be seen from what has been said above that the sum total of organised effort so far made by public authorities and co-operative societies to provide housing accommodation in the City is inconsiderable. Housing provision has, by and large, been left to private effort. In the absence of large capitalists able to undertake and finance large housing schemes as a matter of business investment, house building activity in the City is, for the most part, confined to persons trying to build family residences for themselves. The number of persons who could afford to do this has largely diminished in recent years, owing to the fact that real incomes and margins for saving have shrunk and that the cost of house-construction has enormously increased during and since the last war.

CHAPTER V.

Location of Industries.

23. The textile mills, employing between them about 12,000 persons, were the first large industrial undertakings to be established in Bangalore. Their location appears to have been determined principally by their proximity to the City Railway Station and goods-shed. Other industries have also sprung up in the neighbourhood and on both sides of the Mysore Road. Near this industrial area, a project for a new Industrial Suburb covering about five thousand acres has been surveyed and a comprehensive scheme of development has been planned by the City Improvement Trust Board. There is a natural valley between the old industrial area and the new suburb, which it is proposed to preserve as open space. A portion of the suburb, now called Rajaji Nagar, has been laid out, providing sites for factories alternating with housing areas for the accommodation of industrial workers as well as for other classes of people.

The Bangalore Brewery, the Imperial Tobacco Factory, the Hindustan Aircraft Factory, and the Indian Telephone Industries are among other large Industrial units in and near the City. The Machine Tool Factory at Jalahalli and the factory proposed to be started for the manufacture of wireless and radar equipment will not be more than four or five miles beyond the city boundary.

Besides these, there are at present nearly two hundred medium and small scale industrial concerns employing about 50,000 persons within a radius of 7 to 8 miles from the centre of the city. The variety of the industries is very great and it has been stated that "in no other comparable area in India is an equally large number and variety of industries existing". These industrial units are spread all over the city, though a considerable number are located (*a*) in the mill area above referred to, (*b*) on both sides of the Mysore Road, and (*c*) near Yeswanthpur.

It is understood that there is a possibility of new factories being started (*a*) for the production of automobile components and spare parts*, (*b*) for the manufacture

*This factory has since been established.

of spark plugs, (*c*) for the manufacture of fountain-pens and fountain-pen inks, (*d*) for the manufacture of chocolates, etc.

Proposals have also been under consideration for some time for the expansion of the Government Porcelain Factory and the Government Electric Factory. It is expected that the Suryodaya Mills near Yeswanthpur will have spinning sections added on, involving an additional labour force of about a thousand.

All these schemes may not materialise in the near future. They evidence however the attractions that Bangalore provides to promoters of industries, such as power supply, water supply, railway and other transport facilities and availability of comparatively cheap labour.

24. The need for concentrating industrial establishments in one or more selected areas, instead of allowing them to spring up in a haphazard manner in residential zones and elsewhere, has been felt for a long time. Nearly thirty years ago, an attempt was made to lay out an industrial suburb on the Magadi Road, but for some reason the scheme made little progress and was tacitly abandoned. Industrial activity, stimulated during war-time and since, has served to revive the idea of creating an industrial suburb and this was one of the first schemes entrusted to the City Improvement Trust Board when it was constituted in 1945. As stated already, a substantial part of the scheme has been carried out. Although the area has been suitably laid out and provided with roads and other facilities, it has not developed speedily. It is possible, however, that when water supply is provided for the area the factory and house sites in the suburb will be more fully utilised. In any case, as so much money has been spent on the layout it is essential that all new industrial development should, as far as possible, be guided into this area which is admirably suited for industrial purposes. At the same time, inducements should be offered to owners of existing industrial units in the City to transfer them to the suburb. A lead may be given in this respect by the Mysore Government by moving into this area the Soap Factory and the Central Industrial Workshop from the Administrative area near Cubbon Park where they are entirely out of place and cannot be suitably expanded. In future, no permission should be given for industrial concerns to be started or materially expanded in the residential zones. The only exception to this would be

small concerns using less than 5 H.P. and catering to the immediate needs of the local community, such as flour mills, laundries, workshops for the repair and servicing of motor vehicles.

25. Dispersal of industries has for sometime been the avowed policy of Government. This should be consistently followed and wherever possible, new industries should be diverted to district head-quarters and other towns, such as Harihar, Shimoga, Nanjangud, Bellary. The Kolar Gold Field offers great scope for industrial development. One of the mines has closed down and the others, which have reached great depths, can only have a limited span of life. There is plenty of land available and land values are moderate. With an abundant supply of electric power and water, railway transport facilities etc., Kolar Gold Field should prove acceptable for the location of industry.

CHAPTER VI.

A. Housing Development (Industrial).

26. Till recently, little attention was paid, in schemes of industrial development, to the importance of housing the workers. Except in places like Bhadravati and the K.G.F., where housing accommodation had necessarily to be provided, it was assumed that the worker could be safely left to shift for himself. In the few cases mentioned below where enlightened employers have attempted to provide housing, the effort was wholly inadequate, merely a gesture of goodwill.

	Name of the Industrial concern	*No. of employees housed so far*	
1.	Bangalore Woollen, Cotton and Silk Mills Ltd. (Main Mills at Agrahara Road, and a Branch at Hebbal).	600	(Have a regular programme of constructing some houses every year).
2.	Sri Krishna Spinning and Weaving Mills, Subramanyapuram.	263	
3.	Mysore Glass and Enamel Works	63	
4.	Steel Construction Co., Ltd., Yeswanthpur.	6	
5.	Government Porcelain Factory ...	8	
6.	Hindustan Aircraft Ltd., ...	311	
7.	Indian Telephone Industries ...	7	
8.	Sri Suryodaya Mills, Ltd. ...	50	(Construction of more houses contemplated).
9.	Mysore Spinning and Manufacturing Company Ltd.	160	(Construction of 76 more contemplated).

The only industrial concern of any importance in this area which has provided housing accommodation for the bulk of its labour force is Sri Krishna Spinning & Weaving Mills in Subramanyapur, of which Messrs. Yadalam Subbiah Setty & Sons are the Managing agents.

27. Latterly, both the State Government and the Central Government have accepted a special responsibility (conjointly with employers) to provide suitable housing for industrial labour. A special enactment was passed in 1949, called "The Mysore Labour Housing Act, 1949", providing for the constitution of a "Mysore Labour Housing

Corporation" entrusted with the duty of providing proper houses for employees as near as possible to their places of work. The funds of the Corporation will be derived from grants, advances, loans and gifts from the Central Government, the State Government, or any local authority or any individual or body. A levy is to be raised from every employer at a rate not exceeding 4 per cent on the monthly wage bill of the concern in respect of every employee whose income does not on an average exceed Rs. 125 a month and who is not provided by such employer with housing accommodation. In lieu of this contribution the employer may pay in lumpsum one-third of the cost of the house. The rent prescribed is—

(i) not to exceed 7½ per cent of capital cost of the accommodation or 10 per cent of the wage of the employee, whichever is less, where a single employee occupies a house ; or

(ii) not to exceed 10 per cent of the capital cost or 15 per cent of the wages of the highest paid employee, whichever is less, in cases where more than one employee occupy the premises.

28. The Labour Housing Corporation has recently been constituted. But in anticipation of its coming into existence the Government of Mysore had arranged with the Bangalore City Improvement Trust Board to construct 240 houses for industrial workers at a cost of Rs, 6,28,000 including cost of land. These houses have now been made over to the new Corporation. Advantage has been taken of the subsidised Industrial Housing Scheme which has been initiated by the Central Government, under which finance will be provided to State Governments for industrial housing, 50 per cent to be subsidy and 50 per cent loan. The Mysore Labour Housing Corporation has, it is understood, taken up the construction of 200 tenements for workers of the K. R. Mills at Mysore at a cost of Rs. 5,00,000 during 1952-53 and framed a programme for the construction of 3,400 houses at a cost of nearly Rs. 1 crore for 1953-54. In the meantime, the jurisdictions and duties of the several agencies already acting in the sphere of Town Planning and House Building have to be defined in order to avoid over-lapping and confusion in actual working. The City Improvement Trust Board, the

Municipal Corporation and the Labour Housing Corporation have each functions which are to some extent concurrent. For instance, the Trust Board can acquire and layout extensions. The Labour Housing Corporation has similar powers. Duties in the matter of provision of amenities are shared by the Municipal Corporation and the Labour Housing Corporation. Such overlapping has to be avoided. Another difficulty now being experienced is that of fitting in the provisions of the Mysore Labour Housing Act with those of the Central Government's Subsidised Industrial Housing Scheme. The latter make no provision for the levy on the monthly wage bill as per Sec. 3 of the local Act. Again, the scope of the Mysore Labour Housing Act is restricted to the industries mentioned in the schedule and is confined to workers drawing Rs. 125 and below per mensem. The Central Government Scheme does not recognise these distinctions. The rates of rents leviable are also different. There are, therefore, several difficulties in the way of the Labour Housing Corporation administering funds provided under the Central Government Scheme. It is hoped that these difficulties will be smoothed over at an early date.

29. Some of the largest factories in and near Bangalore, though they are run nominally under a form of company organisation, are owned by the Government of India and/or the State Government. While enforcing the obligation of private employers to contribute to the housing of labour, these Governments cannot remain indifferent to the housing of their own industrial employees. In a welfare State, it is natural to expect that the Government would set an example in this respect to private employers.

30. The Indian Telephone Industries Ltd., have so far provided 6 twin quarters, as an experimental measure, along with one twin quarter built in cement hollow bricks. They have plans in hand for constructing near the Factory 24 each C and D Type houses, one Officer's Quarters and 1,000 houses for employees out of a total labour force of 1,690. This is a commendable move and it is hoped that the scheme may be expedited and completed within the next 2 or 3 years.

The Hindustan Aircraft Ltd., employs even a larger labour force of over 6,000 persons, but quarters have been built only for some 400 employees while the construction of houses for 200 more is said to be in

immediate contemplation. The bulk of the workers would still be left to find house accommodation as best they could in different parts of the City, which are already over-crowded. The situation cannot be met by sporadic or piece-meal action. A proper programme for housing the bulk of the labour (as is done in other Munitions Factories throughout India) should be drawn up and adequately financed so as to secure its completion within 5 or 6 years.

The probable size of the labour force likely to be employed in the Machine Tool Factory at Jalahalli is not known. In the original estimates for this factory, a provision of Rs. 35 lakhs was made for "Residential Settlement". But arrangements appear to have been made only for the construction of a limited number of houses for some of the staff, leaving the bulk of the labour force unprovided for. Since the Factory is expected to go into production shortly, it is high time that this important matter was taken up with the Central Government with a view to its satisfactory settlement.

31. The Industrial concerns of the Mysore Government are not of the same order of magnitude as the Central Government factories mentioned above. But two of them, *viz.*, the Porcelain Factory and the Electric Factory employ a fairly large labour force and schemes for their expansion are said to be under consideration. It is time that the housing of the employees of these two factories at least was seriously undertaken.

32. As for housing of persons employed in private industrial establishments, it is hoped that the new Labour Housing Corporation will be able to evolve suitable schemes as soon as it has got into its stride. As already stated, the Corporation has a fairly ambitious programme and with the liberal provision (of Rs. 50 lakhs) from public funds made for housing in the five-year plan, it should be able to make a good start.

33. Apart from concessions given to statutory housing corporations, the Government of India scheme provides for the grant of a subsidy of 25 per cent of the cost of construction and a loan of 37½ per cent of such cost in respect of housing schemes undertaken by private employers. It is possible that some of the large industrial employers in Bangalore may prefer to avail themselves of these concessions, and carry out their own housing

1904 (B)

schemes. They should be afforded every encouragement to do so.

34. Having regard to the needs of the present situation, we envisage early steps being taken to develop industrial housing in the places mentioned below :—

1. Rajaji Nagar (North), where sites are already available.
2. Rajaji Nagar (South), the layout of which may be taken up when there is effective demand for new schemes.
3. For the Hindustan Aircraft Factory,
4. For the Indian Telephone Industries,
5. For the Machine Tool Factory,
6. Near Yeswanthpur, for the Suryodaya Mills and other concerns in that neighbourhood.

35. It is generally recognised that it is undesirable to segregate industrial workers of different establishments in separate and exclusive colonies. They should be housed in small neighbourhoods or townships, where all civic amenities are provided, and a part of the accommodation is made available to other classes of persons. This will afford the workers better opportunities for cultural growth and promote among them a healthy civic consciousness free from class bias.

This consideration should be kept in view in respect of all new industrial housing schemes, whether they are undertaken by private employers or by the Labour Housing Corporation. If there are any legal restrictions which prevent the latter from providing a limited amount of housing for persons other than industrial workers, in labour housing schemes, such restrictions should be removed.

B. Housing Development (General).

36. As stated already, the housing shortage in Bangalore is about 50,000. If the needs of industrial workers (which have been separately dealt with in the last section) are not taken into account, the general housing shortage would be of the order of 20,000. To pose the problem in this manner might at first sight seem to suggest also an obvious remedy. But this is far from being the case. The construction of 20,000 houses would, in any case, be a stupendous undertaking, but this apart, the question is not simply one of making up a numerical deficiency. As the authors of the London Master Plan have observed ; " It is not sufficient to build millions of houses—

if they are in the wrong place; if they are too far from work; if they perpetuate over-crowded conditions; if they are not grouped in convenient units; if they are not provided with social or shopping centres; if they needlessly usurp the best farm land."

37. There are only about 2,000 vacant sites available for building houses in the City and Extensions. The bulk of the housing requirements must therefore be met by laying out new extensions in suitable places. These extensions, which are described as (satellite) towns or neighbourhoods according to their size and degree of self-sufficiency, should be rationally designed. They should be physically separate from each other and from the built up area of the City. They should not be regarded merely as dormitories for people working in the City but as units of community life, providing a sufficient number of shopping premises, schools, playgrounds for children and some amount of open space for ventilation and recreation. Where they are meant mainly for the housing of industrial workers, proximity to the place of work is the most important consideration. The street system should be designed so as to prevent through traffic from entering the residential areas, thereby minimising traffic hazaards and expenses of street maintenance.

38. In the last chapter, we have recommended the formation of such extensions near (1) The Hindustan Aircraft Ltd., (2) The Indian Telephone Industries, and (3) The Machine Tool Factory at Jalahalli. If the Suryodaya Mill near Yeswanthpur is expanding its operations, as is said to be contemplated, a "neighbourhood" near the Mill would be necessary to accommodate people working n this mill as well as in the small factories near about.

39. The following schemes prepared by the City Improvement Trust Board, which are not new independent layouts but are mainly intended to improve slum conditions do not in all respects satisfy the criteria of neighbourhood planning as explained above. They should, nevertheless, be carried out on the principle of tolerating the lesser of two evils.

1. Lakshminarayanapuram, Ramachandrapuram and Maruthi Extension.
2. Yediyur-Nagasandra Layout.
3. Layout of Anjanappa Garden.

4. Vasanthanagar Layout.
5. Doddabylkhana Extension.
6. Layout of the area behind Water Supply Division.

The Schemes noted below may be carried out subject to some modifications so as to provide some more open space :—

1. Ramakrishna Mutt Extension.
2. Sampigehalli Tank Layout.
3. Bheemanna Gardens.
4. Nandidrug Road Layout.
5. Layout North of Mission Road.

Schemes proposed for laying out the following areas may be dropped. We recommend that these areas be preserved as open space, either as agricultural land or as parks.

(1) Area opposite to Shivaji Talkies.—Area bounded by Sri Jayachamarajendra Road, Mission Road, Lalbagh Road, and Mavalli Tank Bund Road.

(2) Area between Lalbagh Road, Hosur Road and Monkey Thope Road.—These are rich garden lands and it is best to preserve these as such. Moreover, a major portion of the area is unsewerable and unfit for building.

(3) Tank bed in Goripalya—There are high tension wires crossing right across the area. May be left as open space for the area.

If further areas are required for residential extensions, they may be developed on the south-east of the City on eitheir side of Hosur Road, where good building land is available. These areas are marked on the development plan.

By far the most effective way in which the State Government and Local authorities can promote general housing is by making developed house sites available for sale or lease to the public, in other words by laying out "Extensions" as and when they are needed.

40. While the housing of industrial workers has rightly been given high priority, it cannot be denied that the housing needs of other sections, the lower income classes and a large proportion of the middle income groups, are also urgent. But neither the State nor the City Corporation can be expected, for years to come, to embark on any comprehensive scheme of general housing. The provision of new houses, must, by and large, be inevitably

left for the present to private effort, to whatever extent it may be forthcoming. At the same time, assistance should be given to private builders and building organisations on the following lines recommended by the National Planning Commission :—

(*a*) Simplification of the procedure regarding land acquisition in favour of Co-operative Housing Societies and Housing Corporations ;

(*b*) Removal of difficulties in the way of getting controlled materials ;

(*c*) Provision of finance on easy terms for house building purposes to individuals and housing societies ;

(*d*) Provision of adequate amenities and services for all housing schemes ;

(*e*) Exemption from stamp duty on purchase of land for low income group housing ;

(*f*) Exemption from General Municipal Tax and Urban Immovable Property Tax for a fixed number of years on all transactions for low income group housing ;

(*g*) Making available model plans of houses suitable for low-income group and middle class persons and simplification of the procedure for giving sanction to the building of such houses by local bodies ; and

(*h*) Provision of free advice *re* : suitable designs and building materials. Technical advice *re* : construction may also be made available at a nominal charge to cover the actual administrative expenses.

41. Reference may also be invited in this connection to a proposal made by the Mysore Chamber of Commerce :

> "It is necessary that a big Housing Corporation is set up with a capital of, say, Rs. 20 lakhs with power to take loans from Government or by issuing debentures when necessary. This should be actively supported by Government as otherwise there will not be any impetus in proceeding quickly with construction of houses. Facilities for acquiring suitable land and adequate supply of building materials must be made to this Corporation so that the work is not hampered for lack of materials or funds."

The proposal deserves earnest consideration.

42. In this connection the desirability of having a Housing Board as in Bombay has to be considered. As stated already, the problem of housing lower income groups (including middle classes) has probably even more

difficult aspects than that of the labour classes. The question of having an agency to execute housing schemes for such people is therefore essential. A Housing Board with special responsibility for labour housing but entrusted with the work of improving housing conditions for other social groups too, on the lines of the Housing Board in Bombay, may be necessary. Housing schemes under the aegis of such a Board may be financed by grants from the Central or State Governments or by issuing debentures.

CHAPTER VII.

Slums.

43. Owing to the migration of labouring classes from the countryside into the City, a number of slums have come into existence. According to a recent survey made by the Corporation authorities, there are 92 slum areas, containing 10,923 huts or ill-built houses with a population of 58,871. *Vide* statement attached—Appendix E.

44. These slums are of two different types, *viz.*:

(1) Blocks of more or less *pucca* houses in the built-up areas which are used as tenements and which have become increasingly over-crowded;

(2) Open spaces within the City limits and on its outskirts, which have been converted into "Cheries" or hutting grounds. Owners of vacant lands (including persons who have recently purchased them for this very purpose) are finding it profitable to parcel them out into small plots and lease or sell them for the construction of huts. It is to their interest to leave as little space as possible for streets, drains, etc., and divide the rest of the land into the maximum number of hut sites. The smaller the site, the greater, relatively, is the return to the owner who sells or leases it.

45. In addition to these *cheris* where the labouring classes live, there are some housing colonies of people belonging to the lower middle income groups which have come into existence in different parts of the City and adjoining villages. The houses in these colonies are of a better type but like the huts in the *cheris*, they are built in an indiscriminate manner, without proper provision for streets and open spaces for ventilation.

46. Some of the hutting grounds are the property of the Government or the Municipal Corporation but in the majority of cases it is land in private ownership that has been developed in this irregular manner to the detriment of the orderly expansion of the City.

47. If this evil has not been effectively checked so far, it is not appreciably due to want of legal powers to deal with it. It is true, as will be mentioned later, that these powers need to be strengthened and certain defects in the law have to be rectified. But even the provisions of the existing law, if properly enforced, would have been generally sufficient to prevent the haphazard erection of huts and buildings in several unsuitable places.

The law makes it obligatory on the part of persons proposing to erect any building (including a hut) to obtain the previous permission of the appropriate authority. The licensing authorities are the Municipal Commissioner for the Corporation Area (Sections 240, 244, 245, 255-77, Corporation Act), the Trust Board for any area comprised in a sanctioned Improvement Scheme (Section 21 of the City of Bangalore Improvement Act) and the Village Panchayet for the village or villages within its jurisdiction (Section 29 of the Village Panchayet and District Board Act). If the land on which a building (other than a *bona fide* farm-house) is sought to be constructed is agricultural land assessed to land revenue, the permission of the Deputy Commissioner should be obtained, in addition to the building license given by the concerned local body (Section 63 of the Land Revenue Code). The Deputy Commissioner in granting permission may require the occupant to pay a conversion fine which, under the existing rules, is fixed at between Rs. 3,000 to Rs. 4,000 per acre. Penalties are provided for unlawful building and the authorities concerned are competent to direct that structures unlawfully built shall be altered or, if necessary, even demolished.

There seems to be some misconception about the powers of local authorities in respect of building on Inam lands. It was always open to the Municipal Council or the Village Panchayet, as the case might be, to prevent unlawful building on such lands, although Revenue officers were debarred from doing so under the Land Revenue law as it then stood. But by a recent amendment of Section 7 of the Mysore Alienated Villages (Protection of Tenants and Miscellaneous Provisions) Act, XIX of 1950, the Deputy Commissioner is now authorised to exercise powers under Sections 63 and 64 of the Land Revenue Code in respect of all Inam lands, so that so long as that Act is in force, the position will be just the same both in Sircar and Inam villages.

Among other relevant provisions of law to be considered in this context, attention may be invited to the following :—

Sections of the City of Bangalore Municipal Corporation Act.

243. Prohibition against use of inflammable materials for buildings, etc., without permission.

248. (5), (6) and (7) : Refusal of approval to a site for building or of permission to construct building, on the grounds of
(i) streets not having been made as required by Section 225 ;
(ii) the proposed building encroaching on Government Municipal Land, and,
(iii) non-access to such building from any street by a passage or path way not less than 12 feet wide ;

260. (4), (5) and (7) : Refusal of permission to construct hut on the grounds of—
(i) streets not having been made ;
(ii) lack of adequate draining of the land, inadequate lighting ;
(iii) encroachment on Government or Municipal land.

264. Power of the Commissioner to make an order requiring demolition of work unlawfully executed, or not in conformity with rules, bye-laws etc.

265. Commissioner's power to require the owner to fence off, take down, repair, etc., dangerous structures, or do the work himself.

280. Power of Commissioner to require owners or occupiers in respect of insanitary buildings, to take steps to remove danger to public health or safety.

281. Power to prohibit further use of building unfit for human habitation, until the causes rendering it unfit for that purpose are removed.

282. In the case of a dwelling place so over-crowded as to endanger the health of the inmates thereof, the Commissioner may apply to a Magistrate to abate such over-crowding by reducing the number of lodgers tenants, etc.

381. Fixing penalties (fines) for unlawful building.

48. In spite of this impressive array of legal provisions making it obligatory for intending builders to obtain permission (and in some cases a two-fold permission) for the erection of any building or hut, and clothing the authorities concerned with the requisite powers, the evil of unlawful and indiscriminate building has remained unchecked and assumed the proportions of a major civic problem. It may be that there is some ambiguity or loophole, here and there, in the existing law, but this is not so significant as the failure of the concerned authorities to exercise even their undoubted powers. From time to time, efforts have been made to deal with the problem but not on a scale or with the sustained energy necessary to secure any tangible result.

49. The matter has recently been examined by a Special Committee appointed by Government in Government Order No. L. 7473-81—ITB. 32-51-2, dated 11th

October 1951. This Committee have made certain recommendations with a view to tighten up control and check indiscriminate and unhealthy developments. Broadly speaking, these recommendations seek—

(*a*) to ensure greater co-ordination between the authorities invested with power to grant permission for building;

(*b*) to enhance penalties for unlawful building and provide for the infliction of imprisonment, as well as fine on offenders ;

(*c*) to obviate interference by the Standing Committee and the Municipal Corporation with orders passed by the Commissioner in certain cases.

50. While we agree generally with these recommendations which, we understand, have also received the tentative approval of Government, we record the following observations by way of offering alternative suggestions on a few of the points involved :—

Under Section 25 of the City of Bangalore Improvement Act 1945, the formation of lay-outs by private persons was absolutely prohibited. By an amendment effected in 1952, provision has been made to allow private lay-outs with the express sanction in writing of the Trust Board subject to such conditions as the Board may specify. This relaxation was apparently intended to promote the growth of additional housing of suitable type by encouraging private enterprise to come forward and contribute towards the relief of the acute shortage of housing accommodation in Bangalore. Formation of lay-outs by private individuals has, however, several disadvantages. A residential lay-out should provide for amenities like schools, community buildings, children's and adult play-grounds, local parks, etc. In order to be able to provide and reserve land for such purposes economically, a lay-out has to be designed to accommodate a population of 5,000 to 10,000 people and the extent of land required for such a comprehensive lay-out is a minimum of 100 acres. Lay-outs proposed by private individual owners are generally on small and often isolated pieces of land and the sole object of forming the lay-outs is profiteering. In such lay-outs, reserving space for unremunerative purposes like parks and playgrounds is impracticable. The sites are often disposed of before all the amenities are actually provided and the moment the sites are sold out, the original layout owner

falls out of the picture and the purchasers are put to serious inconvenience regarding proper drainage, water supply, etc. These lay-outs generally tend to degenerate into slums in course of time. Difficulty has also been felt in the matter of providing for the future maintenance in good condition of the lay-outs, particularly in respect of those outside the limits of the Corporation. It is therefore advisable to prohibit the formation of private lay-outs altogether beyond the Municipal limits, except perhaps as extensions of the existing villages. If lay-out of any such extension is considered necessary, it should be taken up as a public undertaking by the City Improvement Trust Board.

At the same time, responsibility for taking preventive or punitive action, as the case may be, in respect of unlawful lay-outs and extensions has to be properly located. At present, this responsibility devolves on the City Improvement Trust Board both in the area within the Corporation limits and in rural areas of Greater Bangalore outside those limits. This does not appear to be a satisfactory arrangement. "Lay-out" and "Extension" are somewhat vague expressions and do not admit of easy definition. A couple of houses built, after obtaining individual permission from the Municipal authorities, may ultimately prove to be the nucleus of a colony or housing estate and it would be difficult to determine at what stage such activities would attract the provisions of Section 25 of the City of Bangalore Improvement Act. The purpose and chief ingredient of a lay-out or extension is the erection of buildings and as the Corporation authorities administer the building bye-laws, they should obviously be responsible for dealing with unlawful formation of lay-outs and extensions by private parties within the local limits of the Corporation. Considerations of administrative convenience also point to the same conclusion, as the Trust Board has not, while the Corporation has or can afford to have, sufficient staff to keep an eye on building activities in the different parts of the City and bring to notice any cases of suspected infractions of law. The Corporation authorities have also the advantage of being able to requisition the co-operation of the Police under Sections 428 and 429 of the Corporation Act.

In the rural area also, it is inadvisable to dissociate the power of granting building licenses from the duty of preventing unlawful lay-outs. The City Improvement

Trust Board which is already charged with this duty, should now be invested with power to issue house building licenses also in Panchayet areas within its jurisdiction. This would require an amendment of Section 30 of the Mysore Village Panchayets and District Boards Act so as to enable the Government to delegate the power of granting building permission to any officer whom it may empower in this behalf. So far as rural areas in Greater Bangalore are concerned, this officer would be the Chairman, City Improvement Trust Board. It may be noted that the amendment just proposed would simply restore the phraseology of Section 29-A of the Village Panchayet Act of 1926 before its recent repeal.

As a further measure of integrating authority as well as responsibility in any given area in a single agency, we have considered the question of the possibility of vesting the authorities of the Corporation and the Trust Board with powers under Sections 63 and 64 of the Land Revenue Code as regards revenue lands in their respective jurisdictions. We have come to the conclusion that such a step is neither feasible nor necessary. It would be sufficient for all practical purposes if executive instructions were issued by Government that the Deputy Commissioner should reject any application for conversion of land for no-agricultural purposes unless it is accompanied by a no-objection certificate from the Commissioner or the Chairman, City Improvement Trust Board as the case may be.

The Committee appointed under Government Order No. L. 7473-81—ITB. 32-51-2, dated 11th October 1951 had recommended that a substantive sentence of imprisonment (in addition to fine) should follow a conviction for the contravention of building laws. While agreeing that punishment should be deterrent, we doubt if it is necessary to make it compulsory to award imprisonment in all such cases. In Town Planning legislation elsewhere, the power to enforce alteration or demolition of buildings (in addition to the imposition of fines, costs, etc.,) is considered a drastic enough remedy. However, if public opinion is not greatly opposed to the proposal of the former Committee regarding imprisonment of offenders, we for our part, can have no serious objection to urge against it.

51. *Agency for Reporting Breaches of Law.*—One of the weakest links in the chain of control at present

is the absence of a proper agency to watch vigilantly cases of contravention of law and facilitate the taking of prompt action against the delinquents, and this is particularly the case in respect of revenue lands. Village Officers resident in the villages should be enjoined to report to the Trust Board, without delay, any cases of infringement and they may be given a small honorarium for the work. The Trust Board may also employ a few special Revenue Inspectors to check and collate these reports and to ensure by frequent personal inspections that no cases escape notice. The Corporation also should have a similar vigilance staff for the area within the Corporation limits.

52. The Madras City Municipal Act, on which the City of Bangalore Corporation Act is modelled, contains detailed provisions (Sections 257-A to Section 257-BB) for the improvement of *cheris* or hutting grounds. A *cheri* or hutting ground has been defined as " an area containing land occupied by, or for the purpose of, any collection of huts, standing on a plot of land, or two or more plots of land which are adjacent to one another, and not less than 2,400 sq. ft. in area." The question of including similar provisions in the City of Bangalore Municipal Corporation Act requires earnest consideration. The object of these provisions is to ensure that *cheris* or hutting grounds are properly laid out or improved and that its inhabitants are provided with necessary conveniences, the greater part, if not the whole, of the cost being borne by the owners of the grounds.

53. In any organised effort for improving urban housing, high priority must be conceded to the clearance of slums. The National Planning Commission have recommended that " from the proposed out-lay of Rs. 38·5 crores on housing schemes during the five years covered by the Plan, the Central Government should grant loans for slum clearance to the improvement trusts and local authorities, through the State Governments." The assistance of the Central Government should enable the local authorities of Bangalore to deal effectively with the slum problem. The following are some of the points which require attention in this connection :

In many cases it may not be necessary to demolish the huts in the slum areas and shift the people to other

localities. It may be sufficient to realign or widen some of the streets and remove only those buildings which project into the reformed streets or which may be found otherwise objectionable. Building and hutting sites, if they are too small or irregular, may have to be reconstituted. With some such adjustments and the provision of water taps, latrines and surface drains, a large proportion of the people may be allowed to remain in their present dwellings. Slum improvement, rather than slum clearance, should be the rule.

54. A considerable amount of work on these lines is said to have been carried out in the Madras City. The methods followed and the experience gained in Madras should be studied by the Engineer Officers of the Corporation and Trust Board* and utilised in framing schemes of slum improvement for this City.

55. The preparation of improvement schemes may be undertaken by the City Improvement Trust Board and their execution entrusted either to the Trust Board or the Corporation, as may be deemed convenient in each case.

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*The Engineer Officer, City Improvement Trust Board, has since visited Madras to study the slum improvement schemes undertaken by the Madras Corporation. It is reported that there are 241 slums in Madras—49 on Government lands, 44 on Corporation lands and 148 on private lands. The Corporation has been carrying out slum improvement schemes on Corporation lands for the last two years at a cost of Rs. 31·75 lakhs, a special loan of Rs. 30 lakhs being raised for the purpose and Rs. 1·75 lakhs being found from the funds of the Corporation. The policy adopted is to open out 15 feet roads in the slums and re-lay the area into plots of 20′ × 30′ approximately. Amenities provided are—Gravel roads, electric lights for the streets, underground drains, individual flush out latrines, washing platform with drain connection and public fountains. The cost of these amenities works out to Rs. 350 per family. The sites are leased to the slum dwellers at a nominal rate of Re. 0-4-0 per site, the dwellers being expected to construct the huts themselves in accordance with plans approved by the Corporation.

Further, the Corporation has prepared a scheme costing about Rs. 419 lakhs to improve the remaining slums on similar lines and has approached the Central Government for a subsidy of 50% and a loan of 50% of the cost. This scheme envisages sites of the size of 30′ × 40′ and includes the cost of acquisition of all necessary lands. The estimate includes Rs. 60,000 for provision of play-grounds, parks, schools, child welfare centres etc., for each unit of 250 families. Under this scheme, the cost of a site works out to Rs. 1,400. The sites are proposed to be leased out at a nominal rental of Re. 1 per site.

56. The bulk of the cost of improvement of hutting grounds or *cheris* belonging to private persons should be recovered from the owners.

57. In public lands used as *cheris*, building and hutting sites should be leased to the occupants on condition of their paying a moderate ground rent.

CHAPTER VIII.

Improvement and maintenance of Residential areas.

58. Concurrently with new housing development (dealt with in Chapter VI) and slum improvement (Chapter VII), steps should be taken to relieve congestion in the older parts of the City and Civil Station and to ensure that areas already developed (*i.e.*, the existing Extensions) are maintained properly.

59. As stated elsewhere, the density of population in the more congested areas varies from 150 to over 500 per acre. The aim is ultimately to reduce this density to about 140 per acre. But this cannot be achieved by any direct measures of comprehensive redevelopment, which would be very costly and could not be thought of except in very rare cases. " To replan and rezone built-up areas takes far more time per unit of area than in new areas and the product accommodates much fewer people." The only feasible method of dealing with these congested areas is (1) to encourage the inhabitants to move to the extensions where developed house sites are provided and (2) to relieve congestion and effect feasible improvements by a process of "conservative surgery", keeping the cost of acquisition of properties at a minimum. Houses which are insanitary or unsafe for human dwelling and houses of substandard construction should be demolished. Overcrowding should be rigorously abated. These operations could be carried out under the powers vested in the Corporation authorities. The resulting open spaces should be reserved for the construction of school buildings, maternity homes, etc., or if they are of sufficient size, they may be laid out as minor parks for the use of the local population. If they are reformed as house sites and sold to private persons, care should be taken to see that the houses to be built thereon conform to the standards of construction laid down as being suitable to the area.

60. The existing extensions and the areas containing bungalows standing in their own grounds call for a different treatment. These areas have been developed on a more or less planned basis and do not require any elaborate replanning or improvement. But they are tending to deteriorate in appearance and residential comfort owing to pressure on house accommodation in the City

and the increase of heavy traffic on some of the streets. This tendency should be checked by appropriate regulatory and precautionary action. The measures of improvement and maintenance to be undertaken would include—

(*a*) defining the alignment and prescribing the building line of houses for all important public streets, and

(*b*) imposing suitable conditions and restrictions in regard to the character, number, architectural features and height of buildings, the purposes to which buildings and specified areas may or may not be appropriated, the provision of sufficient open spaces about buildings, and also the minimum width of the frontage for each house on important roads.

61. Enforcement of building Bye-laws of the Bangalore Corporation has been difficult on account of inadequacy of staff. It is also found that in many cases, in the construction of private buildings, no technical supervision is available. To obviate these difficulties, it is rocommended that a system of licensing qualified persons be introduced by the Corporation and the City Improvement Trust Board, under their building bye-laws, as in Madras, Bombay and other big cities in India. Under the building bye-laws, only these licensed Engineers or Surveyors would be authorised to prepare plans and submit them to the Corporation or City Improvement Trust Board, as the case may be, for approval. It should also be made compulsory that any person intending to build or re-build or improve any building within the jurisdictions of the respective authorities should employ a licensed Engineer or Surveyor under whose supervision the whole work should be carried out.

62. Some lands situated in the villages in the vicinity of Bangalore City are includedin the existing City Extensions, *e.g.*, Jayanagar and Rajaji Nagar, and others may be included in new City Extension Schemes undertaken in future. Except to that extent, it is not proposed for the present to plan or replan villages in the area beyond the Corporation limits, that comes within the jurisdiction of the Trust Board. It would be sufficient if in respect of these villages the embargo on the

1904(B)

onversion of agricultural lands for building purposes (except with permission) is strictly enforced and applications for the construction of individual houses and private lay-outs (if permitted at all) are carefully scrutinised and the work during execution is supervised. The immediate problem with respect to these villages is the prevention of unlawful building rather than planned development, which, owing to the cost involved and inadequacy of planning staff, can only be viewed as a long range possibility.

CHAPTER IX.

Educational Institutions.

63. As already explained elsewhere, one of the main objectives in laying out neighbourhoods or townships is to see that each of them is self-contained as far as possible, and the residents of the locality are saved the trouble of having to travel long distances to reach their places of work or to obtain their daily normal requirements. One of the most important needs to be met in this connection is the provision of suitable location for the requisite number of educational institutions of different types so that the children of the locality may undergo their educational training under healthy surroundings not far from their houses.

64. An attempt was made by the Committee to get at least a rough idea of the present and prospective needs in respect of educational institutions in and around Bangalore so that due provision may be made therefor in the programme of future developments to be formulated.

A. Education Department (under the Director of Public Instruction).

65. The Schools in Bangalore are in charge of two District Officers of the Education Department:

(1) The District Educational Officer, City District, is in charge of the Elementary Schools in the whole of the City area, as well as of Middle and High Schools in the City excluding Malleswaram.

(2) The Inspector of Schools, Civil Station, is in charge of all the Elementary and Secondary Schools in the Civil Station, as also of the Middle and High Schools in the Malleswaram area of the City.

The two District Officers referred to above furnished information regarding the developments that have taken place in this area in the past and the further progress that may be expected in the near future, the present position of the existing institutions in regard to adequacy of building accommodation, play-grounds, etc., and the additional requirements in respect of buildings that may have to be provided for if elementary education is made compulsory up to the age of 14 according to the Constitution.

66. From information furnished by the two District Officers, the following particulars are gathered :

A. Bangalore City District :

(*a*) Total number of schools in the area :

		For Boys.	*For Girls.*	*Total.*	*Total No. of pupils.*
High Schools—					
Government	...	2	2	4	
Corporation	...	1	1	2	
Aided	...	7	5	12	
Total	...	10	8	18	6,498
Middle Schools—					
Government		13	10	23	
Aided	...	10	1	11	
Unaided	...	1	3	4	
Total	...	24	14	38	12,185
Primary Schools—		(Mixed). 142			26,656

(*b*) Regarding building requirements :

Five High Schools, 15 Middle Schools and 56 Primary Schools have no independent buildings of their own and they are at present held in rented buildings or in other school buildings working on the shift system.

(*c*) If Elementary Education is made compulsory up to 14 years of age, the undermentioned additional schools may be required :

Seven High Schools for boys,
Seven High Schools for girls,
Four Middle Schools,
Fifty Primary Schools in the City area,
Twenty-five Primary Schools in the adjoining rural area.

B. Civil Station :

In this area there are no separate " Middle Schools " but only Lower Elementary, and Higher Elementary Schools, the latter providing tuition upto Middle School Standard.

Existing private schools are incapable of expansion and have no spare building space for making additions. Extra rooms are proposed to be added only to Government Schools in which spare ground space is generally

available. At 40 pupils per room, 475 extra rooms are suggested (at a cost of Rs. 5,000 each), and another 24 rooms to replace Nissen Sheds. Twelve new buildings (at a cost of Rs. 80,000 per school) are also needed for Elementary school buildings now held in rented buildings or working on the Shift System.

As regards High Schools, the existing schools are not capable of expansion – except European High Schools which have spare area -- and new schools are to be put up to meet the increased strength. It is estimated that 23 additional High Schools will be needed to meet requirements if compulsory education up to 14 years is introduced.

(The standard space required for a High School is estimated at 2 acres of land).

C. Malleswaram Area (Under the Inspector, Civil Station).

Five new High Schools are said to be needed to meet future requirements.

67. *Standards of area to be provided for different types of Schools.*—It is important that adequate open space and play-grounds are provided for every school.

The District Educational officer of the City has suggested the following dimensions of area for the different types of schools:

(*a*) High School (9 Sections). 100 yds. × 100 yds. (First Floor envisaged).

(*b*) Middle School (12 do). Do

(*c*) Primary School ... 150 ft. × 150 ft.

These standards of allotment of land are much lower than the standards suggested in the Greater London Plan abstracted below:

	No. of pupils.	*Building and ground.*	*Playing fields.*	*Total per school.*
		Ac.	Ac.	Ac.
Primary (Infant) ...	175	2	1	3
Primary (Junior) ...	280	2	3	5
Secondary: Boys' Modern.	450	3	13	16
Girls' ,,	450	3	13	16
Secondary: Boys' Grammar.	360	2	11	13
Girls' ,,	360	2	11	13
Secondary (Technical) ...	270	2	8	10

The standards suggested by the District Educational Officer, Bangalore City, may be taken to represent the minimum requirements in regard to educational buildings to be constructed in localities where land values are very high.

68. As regards the new areas to be developed, it is difficult to forecast accurately the requirements in respect of educational institutions in the absence of definite information regarding the number of persons that will occupy the area, the classes of persons etc. The following rough standards are, however, suggested for a township of 10,000 persons when fully developed : --

Primary Schools (Compulsory Education) —

Number of Children from 5 + to 10 + (six years of primary)	1,400	Six Classes Primary.
Number of primary schools, each school containing about 500 (2 sections in each class)	3	

Junior Secondary Schools—

11 to 14 (4 years Secondary) ...	900	Four Classes Junior Secondary.
Number of schools—each school containing about 450 each ... ... (One High School for Boys and one for Girls).	2	

Senior Secondary (Present Intermediate Course) 1 College for 3 units of 10,000.

The above estimate may be considered as a rough forecast of eventual requirements to be kept in view while allocating areas in connection with the formation of new neighbourhoods or townships, with any necessary modifications according to local conditions and any future developments.

69. As regards the Civil Station area, it is understood that it is difficult to find land to provide play-grounds, etc., for many of the existing schools unless the Military authorities are good enough to release for this purpose some of the areas now in their possession. In the Chapter on Military lands, an indication has been given of the extent of areas in their occupation and the possibility of their being able to help in this direction. The matter is one to be taken up at a higher level with the Defence Department.

B. University Institutions.

70. Information regarding the existing strength and the requirements to be provided for etc., is noted in the statement below, based on particulars furnished by the heads of the institutions concerned.

UNIVERSITY.

I. Central College.

		Present strength.	*Requirements.*
1	Staff ...	99 teaching staff. 31 ministerial and other superior staff. 130	
2	Students ...	1,500	
3	Hostel ...	158	Extra 20 rooms with furniture to accommodate 200 boarders in all. One Hall, Reading Room, etc.
4	Play-ground	6 Ac. and one Pavilion. (Present extent).	Minimum of 15 ac.

II. Maharani's College.

1	Staff ...	Tutorial ... 46 Ministerial ... 8 } 54	Accommodation needed for conducting practical classes, music classes, home science classes. Ladies Club Building may be made available.
2	Students ...	812 (234 in 1940).	
3	Hostels ...	Two Hostel Buildings, accommodating 100 Boarders.	Extra accommodation may be provided for 40 more boarders in the old hostel so that the new hostel may be available for Home Science Classes.

III. Commercial College.

	Staff ...	22	Now in rented building on Rs. 1,000 a month. Has no play-grounds.
	Students ...	810	A permanent building for the college, extensive play-grounds, a Hostel, and quarters for staff are needed.

IV. Medical School.

		Strength.	
1	Staff ...	Tutorial .. 31 Ministerial and menial ... 32 } 63	1. A play-ground essential, but no adjacent land available.
2	Students ...	486 (200 in 1940).	2. Hostel needed.
3	Hostel ...	No Hostel.	3. Anatomy Department to be extended.
4	Play-ground.	No play-ground.	

V. Government Intermediate College.

1	Staff ...	118	The College has no separate hostel of its own.
2	Students ...	1,571	The College is stated to be self-sufficient in respect of buildings except play-grounds.

71. The University institutions are situated in a more or less compact area, excepting the Medical School. If the Ladies' Club building can be released for the use of the Maharani's College, and if the Central Jail is eventually shifted elsewhere, the requirements of the University for several years to come could be met without much difficulty.

So far as the Medical School is concerned, as it is desirable to have it not far away from the major Hospitals, its present location seems suitable.

CHAPTER X.

Administrative and Commercial Zones.

72. The importance of Bangalore is mainly due to its being the administrative centre of the State. Almost all the principal offices of the State are located in Bangalore. It is also an University and Military Centre.

73. The area in which the administrative offices are located extends from north-west to south-east of the City and divides the City into two halves. This area includes—

1. The Indian Institute of Science,
2. The Palace and Palace Orchards,
3. Golf Courses and Race Courses,
4. Residency,
5. The Public Offices,
6. University Colleges,
7. Cubbon Park,
8. The areas vested in the Military authorities.

In this area are also situated—

1. The Government Soap Factory,
2. The Central Industrial Workshop,
3. The Central Jail.

74. As stated already, it is desirable to transfer the Soap-Factory and the Central Industrial Workshop to the Industrial Suburb. The longstanding idea of shifting the Central Jail to a suburb in the City or some other place beyond the City needs to be kept in view. (Now that Bellary has become a part of Mysore, the Central Jail at that place might be sufficient to meet requirements). There are a few private properties in the area which may be acquired as opportunity offers. The space thus made available would be useful for the University and other public purposes.

75. In addition to the administrative offices of the State, many new offices of the Central Government are being opened. There is said to be a proposal that the United Nations might locate their offices for Economic Development of South-East Asia, in Bangalore. It is true that Bangalore possesses certain obvious advantages for the location of administrative and other activities. But these advantages should not be unduly strained. Until the housing and water supply situation has materially improved, it would be wise to avoid, as far as possible, further

concentration of administrative, military and other such activities in and around Bangalore. As a general working arrangement, we suggest that only Central administrative Offices of the State and Central Governments be located in this area and purely local offices be located in the Suburbs of the City. In order to have more space available, the essential requirements of Military authorities in the area contiguous to the public offices may be examined and such of the lands as are not absolutely essential for military purposes may be released for Civil purposes.

76. The shifting of the Race-course to the out-skirts of the City may also be kept in view.

77. *Commercial Zone and Shopping Centres.*—Bangalore is an important Railway Junction. It is also connected with all other important towns of the State directly by arterial roads. Thus centrally and conveniently situated, a large part of the commerce of the State passes through the City. It has already attained a pre-eminent position as the biggest inland commercial town in the South.

78. *Commercial Zone.*—There are three areas in which the greater part of the business of the City is concentrated.

Zone A.—South-West of the Administrative Zone is the present combined commercial and residential zone of the City which is very thickly populated with a density of 150 to 500 persons per acre. This is the oldest built-up area and requires re-planning. Most of the houses are centuries old. It is necessary to reduce the congestion of this area to a gross density of about 140 per acre. This cannot of course be done immediately. As the buildings become unsafe for use owing to natural deterioration or other causes, they must be ordered to be demolished and the land acquired by the Corporation until the housing density is sufficiently thinned. Open spaces 200′ × 300′ or 400′ should be created half a mile apart by acquiring and demolishing houses in suitable places and equipping the open areas as minor public parks. The major portion of the cost of these improvement projects could, it is believed, be recouped by the levy of a betterment fee from the residents of the areas served by these parks.

There is a proposal to open a new shopping highway in continuation of B. V. Krishnaiengar Street to meet Chickpet at the junction of Arcot Srinivasachar Street. This would serve—

1. To provide an outlet for the congested traffic of Chickpet now passing *via* Balepet.

2. To reduce congestion on Chickpet and Avenue Roads by providing an alternative and attractive shopping Centre; and

3. To provide people in this thickly populated locality with easier access to open areas.

This is a useful project and may be taken up for early execution.

The Trust Board has a scheme under consideration to shift the Bamboo Bazaar and Timber Yards from their present location to Magadi Road. The site of the present Bamboo Bazaar, may be developed into a shopping and commercial centre to relieve congestion in Avenue Road. The site of the present timber yard may be developed into a park to serve the recreational needs of the western portion of the old City.

Grain Markets in both old and new Taragupet are extremely over-crowded and an extension of this business centre is necessary. The only possible place for such extension is the North of Mysore Road opposite to the present New Taragupet. The Scheme involves the acquisition of a number of houses, but as most of these houses are of a sub-standard construction, the cost of acquisition is not likely to be heavy.

Zone B.—There is another business *cum* residential zone to the North-east surrounding Russell Market in the Civil Station. The conditions here are similar to those of the commercial zone of the City and require similar treatment.

Zone C.—South Parade or Mahatma Gandhi Road has been a fashionable shopping centre of the City for a long time. With the increasing need for shopping premises and office accommodation for commercial establishments, the area between the Russell Market and Cubbon Road in zone B and the area between Mahatma Gandhi Road and Residency Road in zone C are gradually developing as shopping and business centres.

79. *Shopping centres for the City Extensions.*—Proper shopping centres have not been provided for the Southern extensions of Basavangudi, Narasimharaja Colony and Tata Silk Farm as also for Malleswaram and Seshadripuram. We recommend that the area bounded by Yediyur tank on the South, Kankanahalli Road on the West South End Road of Basavangudi in the North and IVth Main Road of Jayanagar on the east be developed as a shopping centre for Basavangudi.

Venkataranga Iyengar Road in Malleswaram and Subedarchatram Road in Seshadripuram have become shopping centres. There seems to be no other suitable place in this part of the City.

CHAPTER XI.

Open Spaces and Recreational facilities.

80. Open spaces in close proximity of residential areas are necessary for recreational and other civic purposes. They include :—

(1) Children's play-grounds (under 10 years of age). These must be available within quarter of a mile of each group of houses in a residential area.

(2) Traffic Squares and circles within built-up areas, serving incidentally as lung spaces.

(3) School play-grounds.

(4) Adult play-grounds, (For Foot-ball, Cricket, Hockey, Golf and etc.).

(5) Sport Centres.

(6) Local parks.

(7) Regional parks,

(8) Areas of natural scenic value.

Though, taking the City as a whole, it may be said that there is a reasonable amount of open space, its distribution over different parts of the City is far from satisfactory. Hardly any school in the City has adequate play-ground space.

81. The following lists furnished by the Corporation give particulars of (1) open spaces, (2) parks, (3) play-grounds in the Corporation limits :—

Sl. No.	*Division No.*	*Open Spaces*
1	2	Open place between 1st Main Road and Temple Road.
2		At the junction of 7th Cross and Temple Road.
3	3	Mysore State Railway line and 7th Main Road, Srirampuram.
4	4	To the west of 5th Main Road and South of Labour Colony.
5	5	Open place of Jakkarayanakere Tank Bed.
6	8	Open spaces in 8th Division (alround Goripalya and Gopalapura, etc.)
7	12	Dharmambudhi Tank Bed.
8		Along Palace Road towards east of Central Jail.
9	16	Open spaces near Azad Nagar and Doddapalya.
10	18	Between Fort Lalbagh Road and Tank Bund Road.
11	19	All round Kempambudhi Tank.

Sl. No.	*Division No.*	*Open Spaces*
12	22	Near Acharya Patasala to the South of Mallikarjuna Temple Street.
13		To South-west end of Subbarama Chetty Road.
14	23	Along East Road bounded by Kankanpalya Road.
15	25	Open Revenue Lands to the east of Sri Jayachamarajendra Road.
16	29	Open Space to the south east of Sydney Road.
17	30	Race Course.
18		Golf Course
19	31	Palace Orchards and Polo Grounds.
20	33	Vacant lands on the eastern side of Slaughter House.
21		Vacant land by the side of Old Hindu Cemetry in Richards Town.
22		Vacant land on the northern side of Pæzold Road.
23		Vacant land on Davis Road.
24		Vacant land on tannery Road near the Mohemadan Cemetry.
25		Vacant land on Madhavaraya Mudaliar Road near Everest Talkies.
26		Vacant land (revenue, acquired) near the Richards Town Hindu Cemetry.
27	34	Vacant land by the side of the M.S.M. Railway line in Tannery Road.
28		Vacant land on Stephens Road.
29		Vacant land on Paranjothi Road.
30		Vacant land by the side of the Main Channel on Wheeler Road.
31		Vacant land on Cleveland Town E St.
32		Vacant land by the side of Main Channel on Moore Road.
33		Vacant land on the western side of No. 9-C Tannery Road.
34		Vacant land on Stephens Road.
35	35	Vacant land reserved for Park opposite to Cooke Town Park.
36		Vacant land space situated opposite Cox Town Park adjoining Boys' School.
37		Vacant land behind Sweepers Line in Doddigunta.
38	36	Kensington Road, Pump House.
39	38	Vacant land in Ulsoor Bazaar St., and Gowlee Street Junction.
40		"A" No. 1 Street—Vacant land Ulsoor.
41		Vacant land in Bowee Street, Ulsoor.

Sl. No.	*Division No.*	*Open Spaces*
42		"B" No. 4 Street and Old Madras Road, Vacant land.
43		Vacant land in E. No. 1 and 2 Streets, Ulsoor.
44	39	Vacant land near Dispensary Road.
45		Vacant land at the junction of St., Johns Road and Gangadhara Chetty Road.
46	39	Vacant land near Nala Road (by the side of public lavatory).
47	41	Vacant land in Memorial Street Bharathi Nagar Maidan.
48		Rocky Area in Nehrupuram.
49		Vacant land near No. 98 Motuchery (Arunachala Mudaliar Road Cross.)
50		Vacant land north of Confectionery in Haines Road.
51	42	Sultanjigunta Quarry Maidan Complete.
52	44	Vacant land between B. No. 11 Street and 18 Street.
53		Vacant land at the junction of Chandy Chowk Road and B. No. 18 St.
54		Vacant land in Ballappa Garden, New Korcherpalyam B. Street.
55		Vacant land near Queens Road to the south of Sweeper Huts.
56		Vacant land opposite to Cattle Lines, Rayappa Gardens.
57	45	Vacant land at the junction of Thimmiah Road and Queens Road.
58		Vacant land at the junction of Broadway Road and E. No. 3 Street.
59		Vacant land to the South of Colonel Hill Road.
60	46	War Memorial Land.
61		Vacant land at the junction of Chinnaswamy Mudr. Road and Munshi Akbar Hussain Road, Tasker Town.
62		Vacant land between Kamalabai School and Queens Road.
63		Vacant land between Thimmaiah Road and Prince of Wales Road.
64		Vacant land between Thimmiah Road and Queens Road.
65		Vacant land at the junction of Queens Road and Tasker Avenue.
66		Triangular bit of land do
67		Blackpally Maidan.
68		Miller Tank Bed Area.
69	47 & 48	Vacant land behind Municipal Stores.

Sl. No.	*Division No.*	*Open Spaces*
70	47 & 48	Vacant land by the side of Vidyadana Sabha.
71		Shoolay Tank land.
72	49	Bethahall Plot at Puduparacherry.
73		Old Isolation Hospital Plot at Puduparacherry.
74	50	Vacant land in front of Model House in Old Race Course Road on the East side of Cement Lines.
75		Vacant land between hutting Colony in Old Race Course Road in Ookadpalyam.
76		Vacant land between Police Quarters and Nishan Huts in Palm Grove Road.
77		Vacant land on the Southern side of Hutting Colony in Rudrappa Garden.
78		Vacant land in the junction of Neelasandra Road in Old Race Course Line opposite line to Cement line.
79		Vacant land in Somanatha Mudaliar Street at Vannarpet.

Sl. No.	*Division No.*	*Parks*
1	2	Parks between east and west park Road, Malleswaram
2	6	Sirur Park.
3		Park to the east of Subedar Chatram Road opposite to Swastick Talkies.
4	7	Municipal Gardens to the South of Dharmambudhi Tank Bund Road.
5	12	Gandhi Nagar Park.
6	14	Munianna Garden Park.
7	20 & 21	Parvathi Chandrasekara Boulevard on Krishnarajendra Road.
8		Vani Vilas Circle.
9	20	Gandhi Bazaar Square.
10	21	Sajjan Rao Circle.
11	22	Subbarama Chetty Circle.
12		In Poor House Block (Shamanna Park).
13	23	Sir M. N. Krishna Rao's Circle and Armogam Circle
14		Do Park.
15	24	Three Parks in Wilson Gardens Extension.
16		Lalbagh Botanical Gardens.
17	26	Silver Jubilee Park.
18	29	Cubbon Park.

Sl. No.	*Division No.*	*Parks*
19	29	Banappa Park.
20	32	Lawns in Williams Town.
21		Proposed Lawns in Pottery Town lay-out.
22		Williams Town.
23	33	Richards Town Park.
24	34	Coles Park.
25	35	Cooke Town Park in Clines Road.
26		Cox Town Park space in Madhavaraya Mudaliar Road.
27	36	Murphy Town Park Opposite Market.
28	38	Jeenigunta Park.
29	40	Kensington Park near Ulsoor Lane.
30		The other portion of Kensington Park leased out to Military.
31		Vacant land towards north of Kensington Park.
32	44	Disused Cemetry to the west of Toddy Shop in "A" No. 2 Street.
33	46	Tasker Town Park.
34		Parks by Government Telegraphic Office No. 1.
35		Parks by Government Telegraphic Office No. 2.
36	47 & 42	Bowring Institute Park.
37		Rest House Park.
38	49	Richmond Park.

Sl. No.	*Division No.*	*Play-grounds*
1	2	Between east and west park roads near Ganesha Temple, Malleswaram.
2		Between 15th and 16th Cross Roads, Malleswaram.
3	3	In Nagappa Block to the North of Kethamaranahalli Burial Ground Road.
4		In Srirampuram to the South of Kethamaranahalli Burial Ground Road.
5	6	Play-ground opposite to Swastik Talkies (east of Subedar Chattram Road).
6	11	In Kottige Lane opposite to Municipal Gardens.
7	12	Behind Mallappa Market.
8	14	In Ranasinghpet.

Sl. No.	*Division No.*	*Play-grounds*
9	15	Along Akkipet Main Road towards west.
10	16	Near Sirsi Circle.
11		Near Doddapalya.
12	17	Attached to Fort High School Compound.
13	18	To the North of Lalbagh Road.
14		In front of " C " Street.
15	19	At the junction of Bugle Rock and Bull Temple Road.
16		Near Gavipuram.
17	20	In Vardhamanaiah Block.
18		Open plot of land opposite Ramakrishna Mutt.
19		Attached to National High School.
20	21	Near Parvathipuram and Fort Lalbagh Road.
21	22	Near 2nd Cross Road, Poor House Block.
22	23	Attached to Sir M. N. Krishna Rao's Park.
23	24	Appayanna Lane.
24		In Wilson Garden Extensions.
25	25	Play-ground in Arumogam Mudaliar Lane.
26	29	In Banappa Park.
27	30	In Palace Upparahalli.
28	36	Kalhally village.
29		Murphy Town Play-ground behind Market.
30	39	Vacant land at the junction of St. Johns Road and Gangadhara Chetty Road.
31	40	Bharathi Nagar " C " Street.
32	46	Blackpally High School Play-ground.
33	37	Children Slide in R.N.A. Bazaar Street.
34	47 & 48	Vacant land at Play-ground in Shoolay.
35	49	Football Ground in Langford Town (behind Akkithimmanahalli Tank).
36		Play-ground in Akkithimmanahalli (near Aswathakatte).
37		Play-ground at Puduparachery for Schools.
38	50	6 Vacant lands in the midst of Model House Colony used for play-grounds.
39		Vacant land on the Northern Side of Hutting Colony in Rudrappa Garden by the side of Old Race Course Road.
40		Vacant land in the Anglo-Indian Quarters Colony at Austin Town.
41		Vacant land in the midst of Anglo-Indian Quarters on eastern side of Yellagondapalyam.

Every care should be taken to preserve these and to prevent their conversion for building purposes.

82. We recommend improvements to the following parks and open spaces and formation of additional open spaces within the limits of the Corporation.

Lal-bagh.—On the west, the enclave between Krumbiegel Road and the walled boundary of the Lalbagh containing slum huts and other insanitary houses may be acquired and included in the garden. On the south, all private lands between Basavangudi East Road and Jayanagar Extension may also be acquired and added to Lalbagh. On the east of the garden, the agricultural lands along the Hosur Road up to the boundary of the Mental Hospital including the Siddapur tank may be preserved as an open space to be developed as a Zoological park when opportunity offers.

The Parvathi Chandrasekhara Boulevard.—This is one of the main features of the city and is not yet quite complete. Lands necessary to extend it up to Irwin Circle have been acquired and the work should be completed early. A petrol bunk has been recently allowed to be constructed on this Boulevard which mars its beauty. When the present lease for it expires, it should not be further extended.

Sankey's Tank.—This tank was handed over to the Palace when Hessarghatta Water Supply Scheme was completed. The whole of the catchment area was also handed over to the Palace. A large belt immediately adjoining the water-spread has been cultivated with cashewnut trees in order to prevent the erosion of land. It is understood that there is a proposal to cut down these cashewnut trees and develop the area into building land. We suggest that this area be preserved as an open space.

The land below Sankey's Tank also belongs to the Palace. The area is cut up and is water-logged and at present is not put to any use. It is suggested that the Palace may be requested to hand over the land to the Corporation free of cost to be developed as a terraced garden.

Dharmambudhi Tank.—This tank which has been breached has now been left as an open space, where exhibitions can be held. This open space is a very valuable asset to the thickly built residential area nearby.

Kempambudhi Tank.—This tank is reputed to have been constructed by Kempegowda, the founder of Bangalore. Slums are developing all round this tank. The Revenue lands between the tank water-spread and the Gavipur-Guttahalli Road may be acquired and developed into a park. There are ancient monuments on the tank bund and the whole area should be improved and preserved.

The following areas may be preserved as open spaces :—

1. The area bounded by Jayachamarajendra Road, Mavalli Tank Bund Road, Lalbagh Road and Mission Road.

   To be preserved as agricultural land.

2. Area between Lalbagh Road, Hosur Road, Monkey Thope Road.

   To be preserved as agricultural land.

3. Bull Temple and its surroundings to be maintained as an open space.
4. Mount Joy Hill and its surrounding area.
5. Gavipur Temple and its surroundings.
6. Jakkarayanakere bed.
7. Ulsoor tank and its surrounding area.

83. The Committee are of opinion that no Government and Corporation land of whatever category both within the Corporation limits and in Greater Bangalore area should be permanently alienated unless there is a very definite advantage to Government, because with the further growth of Bangalore all land required for public purposes will have to be paid for very dearly.

84. *Agricultural Lands.*—Agricultural lands, though not open to public use, form a valuable open space asset of the City. They form a substantial proportion of the available lung space. They are the principal source of supply of some of the essential requirements of the City population, such as, fruit, fresh vegetables, milk and cattle fodder. Interspersed as they are between the various extensions and residential areas, these stretches of green vegetation help to break the monotony of continuous building and to give certain portions of Bangalore the appearence of a Garden City. The future use of agricultural lands in and near the City should be determined with due regard to the healthy, economic and æsthetic considerations involved and not solely with

reference to their suitability for housing or industrial purposes. The policy to be adopted in regard to this matter may be broadly outlined as follows :—

There is an area of about 2,500 acres of agricultural land within the boundary of the present Corporation limits. Conversion of this land for other purposes should not be permitted except in special cases where the land is included in an approved scheme of city improvement.

A stretch of land a mile-wide should be set apart beyond the proposed boundary of the Corporation, to serve as a green belt. In this region also the conversion of agricultural lands for any other purposes should not be allowed, except with special permission which should be given only to provide for normal expansion of the villages in this belt. No housing schemes should be taken up in this belt.

Beyond this green belt and within the sphere of Greater Bangalore, considered housing and industrial schemes may be taken up to provide living and working space for the growing population of the City.

Thus, neighbourhoods and townships in Greater Bangalore area will be surrounded by large stretches of open agricultural and forest land, while in the City itself there will be green patches scattered, as at present, over the whole area.

CHAPTER XII.

Military Lands

85. One of the important factors that have contributed to the expansion of Bangalore is its strategic position from a military stand-point. It commands all lines of road and rail communication in this region. On account of its congenial climate it was particularly attractive to Europeans and British as well as Indian troops were located here during the British Regime. In view of the opportunities for trade and employment offered by the presence of these troops, a strong element of Civil population also grew up in the vicinity.

86. The "Civil and Military Station", Bangalore, had its origin in an extensive area of land that was assigned by His Highness the Maharaja in 1881 to the British Government under Article 9 of the Instrument of Transfer, which empowered that Government to maintain or establish British Cantonments in the territories of Mysore whenever and wherever the Governor-General in Council might consider such cantonments necessary, and further stipulated that His Highness the Maharaja should grant free of all charge such land as might be required for such cantonments and renounce all jurisdiction within the lands so granted.

87. The Government of Mysore have always maintained that the land thus assigned (about 13 sq. miles), making allowance for the fact that a portion of it was a Civil Station, was considerably in excess of the extent actually needed for the purposes of a cantonment. That there was justification for this view will be evident from the following among other circumstances :

(1) The British Military authorities leased out, during the period the area was in their charge, to civilians for non-military purposes—often in perpetuity—several pieces of land out of the Assigned Tract (*vide* list noted on pages 74-75).

(2) When a portion of the Assigned Tract Area, known as the Baiderahalli lines, was about to be vacated by the Madras Pioneers in 1932 and negotiations were afoot for the sale of the lines and the attached lands to the Station Municipality with a view apparently to credit the sale proceeds to the Military Department, the

State Government entered a caveat against that procedure and asked that the lands, when no longer required for Military purposes, should be retroceded to the State. The following extract from a letter that was addressed to the Residency in this connection will make this point clear:

* * * *

"2. Assigned originally as the area necessary "for the occupation and use of the British Civil and Military Establishment", the Assigned Tract is no longer serving that purpose except in a small measure. There is no instance in which control over such a large area or population has been assigned by any State to the Government of India, for the sake of a comparatively small garrison of some 3,000 troops"

* * * *

"6. In any event, the Durbar strongly feel that areas which are not at present required by the Military and are not likely ever to be required by them and those areas which the Military have actually given up as unsuitable for their purpose, should revert to the Durbar, instead of forming part of the Civil Station."

"It can easily be demonstrated that there are areas which have no more to do with the Cantonment proper than, for instance, Cubbon Park....."

"8. With regard to the larger question of handing back the Civil and Military Station to the State, the Durbar venture to think that its consideration would perhaps be facilitated if a preliminary investigation were made as to the areas that are really required for military purposes and as to the best means of safeguarding military interest. Should this proposal commend itself to the Government of India, I am to suggest that the investigation may be entrusted to a small Committee, consisting of representatives of the Durbar, the Military authorities and the Residency and if necessary, also of the Station Municipality."

In the course of negotiations connected with the Retrocession of the Civil and Military Station (prior to the integration of the State with the Indian Union), the Military Department were agreeable to transfer (on Retrocession), to the State Government, the Baiderahalli Lines for a value of Rs. 35,284 as also some other lands and buildings, thus showing that these lands were not really required for Military purposes.

(3) The Military Grass Farms occupying an area (it is believed) of some 1,200 acres are a relic of the days of horse-mounted Cavalry. With the mechanization of Cavalry units, the reservation of large blocks of land nominally for this purpose has no justification,

88. The State Government watched with concern the tendency of military interests to grow, without apparent justification, within and near the Civil and Military Station and endeavoured to see that these activities were as far as possible concentrated in a compact block at some distance from the centres of civilian population. The location of Rifle Ranges at Hebbal was considered objectionable from this point of view and, being anxious to see them shifted elsewhere, the Government of Mysore acquired new land at Iblur and placed it at the disposal of the Military (in 1932) and it was expected that with this move, military activities would be confined to a compact area on the East.

89. Considerations such as those set out above were bringing the retrocession issue to a head, when the Great War II broke out and necessitated postponement of its further consideration. By the time the matter was taken up again, war time difficulties and experiences had made it evident that a partial retrocession on the lines till then contemplated would not be a lasting solution and that in the interests of civilian safety and convenience, military activities should be gradually shifted from the Civil and Military Station to a new Cantonment nearby, *viz.*, Jalahalli, where a Hospital Town had by then been constructed at great cost. A move in this direction could have been made when the State acceded to the Indian Union, or later at the time of its financial integration with the Union. But somehow, (the march of events being perhaps too fast to give room for thought except of first things) the matter has not received serious attention. The position remains what it was before the war and, in some respects, it is even less satisfactory.

Practically all the lands held by the Military before the war, including those temporarily used for military purposes during war-time as well as lands (*e.g.* Baiderahalli lines, the Parade ground near South Parade, the open space near the Residency and the High Level Reservoir) which were to have reverted to the Mysore Government on Retrocession, still remain in their possession, and there is evidently no move to release them.

90. The integration of the State Forces with the Indian Army has resulted in the transfer to the latter of all the lands and buildings previously used by the Mysore Lancers and the Mysore Infantry, thus adding a new

sizable and detached block on the north-west to its already extensive possessions on the eastern side of the City.

91. Another anomaly has been created by the fact that while notifying the limits of the area that was to comprise the City of Bangalore Municipal Corporation (*Vide* Government Notification No. L. 5320—C.M. 49-49-3, dated 2nd December 1949), Government have excluded several areas (as many as 36 items) from the jurisdiction of the Corporation. The reasons for such exclusion have not been mentioned but presumably this was done at the instance of the Military authorities. In the interests of efficient administration, it does not appear to be desirable to leave so many pockets in the midst of the City not subject to the general provisions of the Municipal Law.

92. Under Article 9 of the Instrument of Transfer, 1881, and Article 8 of the Mysore Treaty, 1913, the State was required to place at the disposal of the Central Military authorities, free of all charge, lands belonging to the State, which might be required for the purposes of a Cantonment. As a corrolary to this, it has always been recognised that if such lands are no longer required for the purpose intended, they revert to the State, free of all charge. Practically all lands under the control of the Union Defence Services in Bangalore and in the Iblur Rifle Range, etc, had been ceded under the Treaty provisions mentioned above and it is presumed that the State's contingent rights of reversion in the lands are unaffected by anything contained in the Indian Constitution. The matter needs clarification in order to avoid any disputes in future.

93. These are questions of policy which should be settled by the State Government at the appropriate level. What this Committee is immediately concerned about is the fact that any appreciable increase of Military activities in Bangalore will inevitably tend, on the one hand, to encourage immigration into an over-crowded city, adding to the strain on housing and public services and, on the other hand, to limit the availability of lands conveniently situated for housing development and other civic requirements. The increased risk of air raids in times of war cannot be overlooked in this connection.

94. From the facts already mentioned above, we are led to think that out of the extensive lands now in possession of the Military, there must be several areas which are not absolutely required for Military purposes and which it should be possible to release for civilian use. If, by suitable readjustment, the Military could be induced to give up such lands it would greatly help in meeting the need for additional vacant land that is acutely felt for location of schools, play-grounds, etc., (particularly in the Civil Station), and some of the areas can be conveniently developed as suitable residential plots also. In any case, the land in Agaram Plain, which is absolutely necessary for making satisfactory arrangements for the disposal of sewage, should be got released in the interests of the health and sanitation of the City.

95. It is suggested that a detailed investigation be made and lists prepared of the areas that are really required for Military purposes and of those that could, without inconvenience to military interests, be released for civilian use, subject to suitable conditions, if necessary. The investigation may be entrusted to a small Committee consisting of representatives of the Defence Services, the State Government, the Bangalore Corporation and the Bangalore City Improvement Trust Board.

Vide paragraph 87 (1)

Statement showing the lands in C. & M. Station, Bangalore, assigned to the Military authorities, free of cost, which are now leased to Civilians.

Sl. No.	*Situation*	*Name of lessee*	*Area of land.*	
			Ac.	Gts.
1	Victoria Park, Bangalore ...	Pensioned Sergent, Bride ...	18	22
2	All Saints Church, Ulsoor Road	The Wardens All Saints Church	11	0
3	Bowring Institute, St. Mark's Road.	P.M.C., C. & M. Station, Bangalore.	11	16
4	Lakshmi Theatre ...	A.R. Cheluvaraya Mudaliar ...	1	7
5	Victoria Park, Bangalore ...	Municipal Commission, C. & M. Station.	4	0
6	Victoria Park, Bangalore ...	Mrs. H. W. Birch Gilby ...	18	18
	Do do ...	*Rao Bahadur* B. V. Venkataswamy Naidu & Sons.	0	24
7	St. Mark's Church, Richmond Road.	Chapel, St. Marks Church ...	1	24
8	Richmond Road ...	Bishop of Madras ...	10	25
9	Moor-House Barracks ...	Shaik Peer ...	485 Sq. ft.	
10	Do do ...	Kotwal Yellappa ...	381½	,,
11	Cornwallis Barracks (part of Followers Lines).	Rev. A. M. Tabard ...	·0646 acres.	

Sl. No.	Situation	Name of lessee	Age of land.
12	Old Cubbon Lines ...	Subedar Paul Sebastian ...	729 Sq.ft.
13	Compound of St. Patrick's Cathedral.	The Chaplain, St. Patrick's Cathedral.	47 guntas
14	Guntroop Village ...	Mr. A. Viaperi ...	2 guntas
15	Hospital Road ...	*Rao Bahadur* B. V. Venkataswamy Naidu & Sons.	·61 acres
16	Blackpally Maidan ...	Fakir Uddin ...	21 guntas
17	Guntroop Village ...	Mr. S. Giridharilal, Bankers ...	2 guntas
18	South Parade ...	Hon. Secretary, Bangalore Jamkana Club.	1·74 acres
19	Trinity Church Road ...	Y.M.C.A. ...	7¾ acres
20	Igguldin Park, Old Race Course Road.	Do ...	6·25 acres
21	Maude Camp ...	Do ...	1·055 ,,
22	Agaram ...	Do ...	0·806 ,,
23	Guntroop Village ...	Kotwal Parasuram ...	2 guntas
24	Clive Lines, Bangalore ...	Y.M.C.A. ...	3 acres
25	Bungalow No. 8, Rest House Road.	Mr. A. J. Flynn ...	2·70 guntas
26	Guntroop Village ...	Mr. S. Giridharalal, Banker —	22 ,,
27	Follower's lines, Moor House Barracks.	P.M.C., C. & M. Station ...	1·62 acres
28	House No. 25A, Cubbon Road ..	Mr. H. Chetty ...	¼ acre
29	Cornwallis Barracks, Followers Lines.	The O. C. Queen's Bays ...	294 Sq.ft.
30	House No. 28, Cubbon Road ...	Mrs. J. M. Hayes, now known as Mrs. Andrews.	45 acres
31	House No. 25, do ...	Major R. W. Simpson ...	7 guntas
32	Old Poor House Road ...	*Rao Bahadur* B. V. Venkataswamy Naidu & Sons.	42 acres
33	House No. 9, Residency Road, (Valve Superintendent's quarters).	Mrs. Swasbrook ...	2 acres and 4 guntas.
34	Station Parade Ground ...	B. U. S. Club ...	6 acres
35	Harris Barracks ...	Bangalore Hunt Club ...	1·63 acres

CHAPTER XIII.

Communications and Transport Facilities.

96. *The Existing Road System*.—Situated midway between the East coast and the West coast of the South Indian Peninsula, Bangalore forms the centre of the road and rail systems and of air services in this region. A number of trunk roads radiate from it in all directions, reaching out to Madras and Cuddalore on the East coast, Bombay, Mangalore, Calicut and Cochin on the West Coast, to Bellary and Hyderabad on the North and to a number of important towns in Central Tamilnad towards the South. These trunk roads (two of which are now designated National Highways) traverse a total length of 30 miles within the territorial limits of the Bangalore City Corporation.

The internal road (or street) system of the city consists for the most part of short lengths of road laid out on a rectangular pattern and serving primarily the

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Note 1.—(*a*) The Committee at its meeting, dated 5th July 1952 appointed a Sub-Committee, consisting of the following members, to examine the existing road system and available transport facilities and recommend measures needed to improve them :—

(1) Sri N. V. Babu Reddy, B.A., I.P.S., Inspector-General of Police (*Chairman.*)

(2) Sri K. R. Madhava Rao, B.A., LL.B., Chairman, Bangalore Transport Company.

(3) The Engineer, Bangalore City Corporation.

(4) The Engineer Officer, Bangalore City Improvement Trust Board.

(5) Sri H. S. Seetharam, Member, Bangalore City Corporation.

(*b*) The Sub-Committee after a careful consideration of the question and personal inspection of the localities concerned submitted a report indicating the present position and the improvements suggested by them. The recommendations of the Sub-Committee were adopted with a few modifications by the Development Committee and are reproduced in this Chapter.

Note 2.—The expressions "Roads" and "Streets" are used as being synonymous for the purposes of this Chapter.

needs of local traffic in the several parts of the city. There are also about half a dozen main roads or thoroughfares, which run north and south or east and west. Of these the longest, *viz.*, from Basavangudi to Hebbal, traverses the whole length of the City and forms the axis of its road system. The different kinds of roads mentioned above, linked one with another, serve to some extent the purpose of sub-arterial roads.

The total length of roads in the Corporation area is 324 miles, of which 142 miles is asphalted and 79 miles has a macadamised metal surface. A few roads formed or improved in recent years (*e.g.*, Narasimharaja Road, South Parade) have an overall width of more than 75 feet and in one instance (*viz.*, the Western road of Wilson Garden Extension), provision is made for a central verge to segregate traffic moving in opposite directions. But generally speaking the roads are narrow, more particularly in the older parts of the City and Civil Station and it is not possible even to layout foot paths on most of these roads.

97. Till about 20 years ago, there were only a few motor vehicles in the City. But their number has rapidly increased since and according to the latest figures available 4,783 motor-cars 235 taxis (including Auto-Rickshaws), 544 buses, and 1,373 motor-trucks are kept in the City, while an appreciable number from the mofussil run into and out of Bangalore every day. There are now about 35,000 bicycles and about 1,600 motor cycles in the City.

98. *Changing conditions and ultimate solution.*—In Bangalore as in other Indian cities, the motor truck is displacing the bullock cart and the jutka is giving place to the motor bus. The road problem that will be posed by this change-over, when completed, is aggravated rather than minimised during the period of transition, when the roads have to carry both slow and fast moving vehicular traffic, simultaneously with an increase in the number of pedestrians and cyclists using the roads.

The statistics of road accidents in Bangalore during the past 5 years show that road hazards are on the increase and call for a progressive intensification of measures of safety.

99. The long range solution of the problem would, of course, be to provide (as is being done or proposed in modern cities) new roads specially designed to meet the changed conditions of traffic and to remodel existing roads to serve that purpose.

We recommend the following widths for different classes of roads:

		Main Arterial and shopping	*Sub-arterial*	*Residential*
		Ft.	Ft.	Ft.
Foot-path	...	2 × 20 = 40	2 × 15 = 30	2 × 8 = 16
Carriageway	...	2 × 30 = 60	2 × 22 = 44	1 × 24 = 24
Centre Verg	...	1 × 20 = 20	1 × 16 = 16	Nil
		120	90 or say 100	40 or 50 ft.

For main arterial roads, cement concrete carriage ways are best. Ten feet concrete slab paved footpaths may be provided on arterial roads for pedestrians. In shopping streets, the full width of footpaths should be paved.

In arterial and sub-arterial roads two-way carriage ways are best for protection from the glare of opposing head lights and risks of collision.

100. *Trunk Roads.*—The trunk roads both at the city approaches and in some sections within the city boundaries are too narrow for the growing volume and variety of traffic they carry, a difficulty which is aggravated in times of emergency. During the last war, for instance, it was often observed that convoys moving into Bangalore on the Tumkur Road were greatly delayed or, in their turn, seriously held up civilian traffic, owing to the narrowness of the road on the bund of Sankey's Reservoir. As no temporary diversion could be made at that place, the cement-concreting of the last section of the road (from Yeshawanthpur level crossing to the High Ground High Level Reservoir) had to be abandoned, although the Government of India and the Government of Mysore were prepared to finance the work as a war-time project.

101. This is only one instance. There are several such bottle-necks in the City on the different trunk roads. To widen and improve the urban sections of these roads

to anything like the standard desired would be a very difficult and costly undertaking. It would be a far better and financially easier proposition to construct a by-pass road of the requisite width skirting the City and intersecting all the trunk roads. This would eventually be a circular road running.—

(*a*) from Yeswanthpur to Nayandanahalli,

(*b*) from Nayandanahalli to Jayanagar,

(*c*) from Jayanagar to Madivala,

(*d*) from Madivala to Belandur,

(*e*) from Belandur to Krishnarajapuram, and

(*f*) from Krishnarajapuram to Tumkur Road *via* Jalahalli.

One section of this road-segment (*a*) has already been formed. This road will provide for development of new sites for industry and attendant residential extensions and in case of war as well as at other times it will serve as a by-pass for Military Traffic between Madras, Bellary, Bombay and Hosur *Via* Bangalore. Being mainly meant for facility of military transport, (though serving other purposes), the Government of India may be expected to meet a substantial portion of the cost of this project.

102. While on the subject of trunk roads, we may also observe that these roads, particularly near their approaches to the City, are susceptible to ribbon development. This is already markedly in evidence and unless it is arrested, it may render the improvement of these roads to standard requirements very expensive and difficult. The State Government might issue strict instructions to Revenue Officers and others concerned that no building development should be permitted on agricultural and other lands within a distance of 100 feet on either side of the road margin. Such instructions have, it is understood, been issued already in respect of certain villages on the Mysore Road. They should be made applicable to all trunk roads converging on Bangalore and steps should be taken to see that they are regorously enforced.

103. *New City Roads.*—Apart from the circular road mentioned above, we consider that within the city area, a few new roads should be formed as indicated below :—

1 A new road may be formed or an existing lane suitably widened, from the District Office Road to Silver Jubilee Road.

2 Sultanpet may be linked up with Cottonpet, the road connecting them being extended so as to join Kemmannagundi Road.

3 It is necessary to open one or two streets between East End Road (Visveswarapuram) and Krumbiegel Road, through Mavalli.

4 Three Link Roads at least between Malleswaram and the Industrial Suburb are necessary. One is now sanctioned.

5 The question of opening B. V. Krishna Iyengar Road between Kempegowda Road and Chikpet may be pursued.

104. *Road Improvements.*—The central business parts of the City were planned and developed in the early 19th century long before the advent of the internal combustion engine. The streets are much too narrow and widening is very costly. The only improvements possible are removal of some bottlenecks wherever they are found necessary and removal of encroachments, projections, temporary stalls and ugly signboards. Every important road in the City and Civil Station must have a building alignment plan approved by the Corporation and this alignment must be adhered to whenever building licenses are granted. In the lanes, there are a number of pials encroaching upon the Municipal land. These must be removed to widen the lanes.

It is essential to introduce one-way traffic, wherever it is feasible, on important roads. Action has also to be taken to replace over-head electric and telephone lines by underground cables in congested streets.

We give below a list of roads to the improvement of which special attention might be devoted in the coming years having regard to the volume of traffic they carry and their importance as links in the inter-regional system of communications in the City.

1 Dharmambudhi Tank Bund Road to be lowered.

2 Akkipet Road—Kottige Lane to be continued.

3 Balepet Corner near Narasimharaja Temple to be eased.

4 Shankara Devara Mutt Lane to be widened.

5 Arcot Srinivasachar Road to Arlepet to be improved.

6 Police Road—some bottle-necks to be removed.

7 Junction of Gundopanth Road and Avenue Road to be improved.

8 Road between Ragipet and Dodpet to be widened.

9 Bamboo Bazaar Road opposite to Regal Talkies to be improved.

10 Vani Vilas Road—S. L. Charities to Jayachamarajendra Road to be improved.

11 Magadi Road upto Chord Road to be widened.

12 Road between Cottonpet and Kemmannagundi Road near Super Talkies to be widened.

13 Road between Cottonpet and Arcot Srinivasachar Street, to be widened opposite to Madurai Mudaliar's Workshop.

14 Langford Road between St. Joseph's Hostel and Hosur Road to be widened.

15 From V Road, Chamarajpet to Mysore Road, new road to be formed.

16 East End Road between Mavalli Circle and Lalbagh Circle to be widened.

17 Kilari Road, Rangaswami Temple Street to be widened and improved wherever possible.

18 Road from Vaccine Institute to Richmond Circle to be widened.

19 Bus Stand near Theatre Majestic to be shifted to the East of Dharmambudhi Tank.

20 (*a*) Road from Sydney Circle to Queen Statue to be widened.

(*b*) Sydney Circle to Richmond Circle–Sydney Circle to Vaccine Institute through Sampigehalli Area (new road to be formed).

21 Road from Kalasipalyam to Lalbagh Circle and Hosur Road upto Mental Hospital to be widened.

22 Mysore Road from Market Square to Ookad to be improved.

23 St. Mark's Road from its junction with Mahatma Gandhi Road to its junction with Residency Road to be widened on the Western side and concrete payment to be provided on the Eastern side.

24 Residency Road from its junction with Richmond Road to its junction with Mahatma Gandhi Road behind Mayo Hall to be improved and pavement laid out on one side only.

25 Museum Road from its junction with Madras Bank Road to Shoolay Police Station to be improved.

26 Brigade Road from its junction with Mahatma Gandhi Road to its junction with Richmond Road and on to Hosur Cemetry on Hosur Road to be improved.

27 The road from Hindustan Air Port to Old Recruiting Office to be improved.

28 Tannery Road from Bangalore Cantonment Railway Station to the underbridge to be improved.

29 St. John's Church Road—pavements to be provided.

30 Miller's Road from its junction with Cunningham Road to the level crossing near Benson Town—the level crossing to be eliminated by putting up an underbridge.

31 Nandidrug Road to be improved.

32 Mosque Road to be improved.

33 Madhavaraya Mudaliar Road to be improved.

34 St. John's Road from its junction with Dickenson Road to its junction with St. John's Church Road to be improved.

35 Wheeler Road to be improved.

36 Queen's Road from its junction with Cubbon Road to its junction with Mahatma Gandhi Road—pavements to be provided on the Western side.

37 Mahatma Gandhi Road from its junction with Brigade Road to Trinity Church and on to the Isolation Hospital on the Old Madras Road to be improved.

38 Roads around Ulsoor Tank—pavements to be provided.

39 Dickenson Road to be improved.

40 Central Street to be improved wherever possible.

41 Cubbon Road from Residency to its junction with Dickenson Road—pavements to be provided on one side only.

42 Cavalry Road from its junction with Commercial Street to its junction with St. John's Church Road—pavements to be put up.

105. *Planting of Avenue trees.*—Within the Corporation limits of Bangalore, avenue trees have been planted on most of the broad roads. There are still some more roads where avenue trees could be planted, *viz.*, East End and South End Roads of Basavangudi, Narsimharaja Road, Jayachamaraja Road, Hardinge Road, Bull Temple Road, Richmond Road, Monkey-thope Road, Residency Road, Mahatma Gandhi Road, etc. Some of the avenues have come up very well, but it is very unfortunate that the branches are often cut by the Electrical Department owing to the power lines running close to them. This could be seen in Kempegowda Road, Mysore Road, Venkatarangaiengar Road in Malleswaram and Seshadri Road. The only way by which this could be avoided is to replace the over-head lines by underground cables. Sometimes private people also cut the avenue trees for fire-wood and for decorating purposes during festival days. This can be prevented by having a close watch.

While planting avenue trees, care must be taken to plant the right type of trees, as some of them spread their roots practically at the ground level and this has been a great danger to the neighbouring properties and particularly to sewer lines and water mains.

106. *Foot-paths.*—Most of the important roads within the Corporation limits have been provided with foot-paths. In places where there is very heavy pedestrian traffic, the Corporation has paved the foot-paths with either cement

concrete slabs, burnt stone slabs, or unsized stone pitching. They are serving the purpose well. Still, there are large lengths of foot-paths requiring immediate attention. The cement-concreting or slabbing of foot-paths has to be done only where the pedestrian traffic is very heavy, while in other places gravel foot-paths would serve the purpose if they are maintained properly, as gravel foot-paths are less costly than concrete ones. Pitching of foot-paths with unsized stone has proved unsightly and inconvenient to the pedestrians and this must be avoided. In Madras, asphalting of foot-paths has also been tried and it may be adopted in Bangalore also where the pedestrian traffic is very heavy.

107. An outline of the improvements to the road system proposed, is indicated in the Plan of Greater Bangalore (App. F.). If all the proposed roads in this system are constructed and the existing roads improved so that they form the main arteries of traffic, it should be possible to ensure quick transit from one part of the City to the other. A short run from any congested locality would place a person on a road suitable for through traffic. The streets that would figure prominently in the Master Plan of the City are—

North to South

1 Venkatarangaiengar Road—Platform Road—Kempambudhi Tank Bund Road (West)—Kemmangundi Road—Church Road—Chamarajapet Bazaar Road—Bull Temple Road.

2 Miller Road—Palace Road—Avenue Road—Krishnarajendra Road.

3 Sydney Road—Jayachamarajendra Road—Basavangudi East Road—Fourth Main Road—Kankanpur Road.

4 Bansavadi Road—Wheeler Road—Cavalry Road—Brigade Road—Bhannerghatta Road.

West to East

1 Tumkur Road—Sankey Road—Bellary Road—Cubbon Road —Queen's Road—South Parade Road—Madras Road.

2 Link Road from Rajaji Nagar—Seshadri Road—Cenotoph Road—Sampangi Tank Bund Road—Richmond Road.

3 Mysore Road—New Link to 5th Main Road—Mavalli Road —Hosur Road.

108. *Traffic Circuses.*—We recommend that one way traffic circuses be constructed at all junctions of important roads. These circles are to be of a minimum diameter of 200 feet, the traffic island being at least 75 feet diameter with 33 feet wide carriage-way and 25 feet wide foot-paths. No shop and residential frontages should be permitted into these circuses.

109. The following junctions of roads require immediate improvements. Land in most cases is still unbuilt and if acquisition is delayed, the cost may become prohibitive.—

1 Mavalli Circle.
2 Lalbagh Circle.
3 Basappa Circle.
4 Shankar Mutt Road and 5th Main Road, Chamarajpet.
5 Bull Temple Road and 5th Main Road, Chamarajpet.
6 9th Cross Road and 5th Main Road, Chamarajpet.
7 Sirsi Circle.
8 Albert Victor Road and Mysore Road.
9 Arlepet Road and Mysore Road (Briand Square).
10 Junction opposite to Town Hall.
11 Doddapet Chowk.
12 Balepet-Chickpet Chowk.
13 Junction of Balepet, Dharmambudhi Tank Bund Road, Kempegowda Street and Subedar Chattram Road.
14 Venkataranga Iyengar Road and Subedar Chattram Road.
15 Cubbon Road and Post Office Road.

110. *Parking of Vehicles.*—If vehicles are parked on a carriage way, the effective width of the carriage way is reduced. If such parking is permitted at all, it should be strictly regulated.

111. We recommend that—

1. In a business locality no car be permitted to park at a place for more than half an hour. Cars should not be allowed to be parked within 100 feet of corners of road junctions.

2. All big business establishments and Cinemas should be required to provide parking places for their traffic.

3. Public garages should be constructed by the Corporation or by private enterprise in busy centres. It is possible to run these on a commercial basis. One such garage is urgently necessary at Chickpet.

112. *Air Transport Facilities.*—Flying has become a popular means of transport. Bangalore, being situated almost in the centre of the South Indian Peninsula, is already the hub of many services radiating in all directions. Bangalore is also the centre of the aircraft industry in India. We understand the Hindustan Aircraft Air Port is likely to be developed to handle the ever increasing number of air services. It is also suggested that the question of developing an Air-port at Jakkur as the central Air-port for Bangalore should be investigated. The site is not far from the City and appears suitable in all respects for a Civil Air-Port.

113. *Railways.*—For a beautiful City like Bangalore, the Central City Station is inconvenient in every respect and the approaches are very unsatisfactory. The Station requires remodelling with frontage on to Dharmambudhi Tank Bund Road with ample car and vehicular parks.

114. If, in the future, traffic surveys justify a circular railway route round the City, it will be a great help to develop the area round about Greater Bangalore. The following route is suggested:—

Bangalore City—Nayandahalli—Basavangudi — Jayanagar—Madivala — Belandur — Krishnarajapur—Chick Banavar—Bangalore City.

115. Bangalore City Goodsyard is in a congested locality and the available space is hardly sufficient to meet the mercantile needs of the City. (The volume of goods handled in the Broad Guage Section of the City Railway Station alone was 67,49,736 mds. in the year 1950-51). Provision of a Central Goodsyard near Yeshwanthapur to which the Broadguage line from Jalahalli could be extended may be considered. Even if the project is not taken up immediately, it is essential to reserve the land now alone for the purpose, before it is built over. The area reserved should be sufficient to provide sites for the merchants to construct ware-houses.

116. *Under-bridges.*—Level Crossings of Railways are bottle-necks for traffic. The level crossings at the following places should be replaced by under-bridges as early as possible.: —

1. Subedar Chattram Road Level Crossing.
2. Magadi Road Level Crossing near Binny Mills.
3. Miller Road Level Crossing.
4. Bellary Road Level Crossing.

117. *Execution of Road Projects.*—Reverting to the recommendations made earlier in the chapter for opening a few new roads and improving some of the existing roads and for the construction of Traffic circuses, we wish to point out that these recommendations are based on personal knowledge of local needs possessed by the members of the Roads Sub-Committee. They made spot inspections to satisfy themselves that the suggestions were *prima facie* suitable. At the same time, they have felt and we agree with them, that detailed studies should be made and estimates prepared in respect of the several projects recommended and that where necessary, traffic surveys should also be conducted before anything in the nature of a concrete and workable programme can emerge. Even so, it may not be possible to carry out all the works decided upon, unless their execution is spread over a period of years.

118. In this connection, reference is invited to the provison made in Section 40 of the Madras City Improvement Trust Act, 1950, enabling the Trust Board to prepare what is termed a " Deferred Street Scheme " in cases where it is deemed expedient to provide for the ultimate widening of any street but it is not expedient immediately to acquire all or any of the properties lying within the proposed improved alignment. When such a deferred street scheme is sanctioned, no person may, without the written permission of the Board, erect, re-erect, add to or alter any building or wall so as to make the same project into the prescribed alignment of the street. A time limit (not exceeding 20 years in all) is prescribed in the scheme within which the property lying within the prescribed alignments may be acquired. The enactment of a similar provision here may facilitate action being taken by stages, as and when finances permit, in regard to the widening of any important roads at a later date, and in the meantime guarding against any developments which may make it more difficult to achieve that end.

CHAPTER XIV.

Water Supply.

119. *Past History.*—The first scheme of protected water supply of Bangalore, called the "Chamarajendra Water Works", was undertaken in 1894, the source of supply being the Hessarghatta reservoir on the Arkavati River. The population of Bangalore in 1891 was 1,80,360 and the scheme was designed for supplying a population of 2,50,000, providing 12½ gallons per head per day. Assuming a population increase of 16 per cent per decade, it was anticipated that the works would be sufficient to meet the City's needs for three decades.

The maximum population of 2,50,000 for which the scheme of 1894 was designed was reached by about 1922. The inadequacy of supply which had began to be felt from 1918 became an acute problem by about 1925 and a new source had to be thought of by that time. A committee was appointed by the Government of Mysore under the Chairmanship of Sir M. Visvesvaraya, in Government Order No. 4001-5, dated 8th May 1926. After thorough investigation of possible sources of supply, the Committee recommended the construction of a reservoir at Thippagondanahalli to impound.

I Stage	...	... 2364 million c.ft.
II Stage	...	... 3038 million c.ft.

The first stage works were designed in 1928 to provide a daily supply of six million gallons at the rate of 20 gallons per head per day for a population of 3,00,000.

While the Hessarghatta reservoir was a joint enterprise of the State and the India Government, the reservoir at Thippagondanahalli was undertaken and financed solely by the Government of Mysore of which Sir Mirza M. Ismail was Dewan at the time.

The reservoir was put into service from 16th March 1933, marking an important stage in the development of Bangalore. The capacity of the plant and rising main was only for the delivery of 5 to 6 million gallons, which could hardly give 16 gallons per head per day, since the population of Bangalore by that time had increased to about 3,40,000.

120. Additions and improvements have been effected since 1942 and the City is now getting a maximum of 10·8 million gallons in addition to 1·3 million gallons from the Hessarghatta tank. Thus the total gross supply now is about 12·1 million gallons (maximum) for a population of 8,00,000, which gives a *per capita* allowance of 13 to 14 gallons, which is very inadequate for this city. Further, the distribution system is already old and the present state of water supply is very unsatisfactory. Many areas in the City do not get proper supply and there are loud complaints everywhere. The pumps installed on 16th March 1933 at Chamaraja Sagar Reservoir have given service for over 20 years and require immediate replacement, and additional stand-byes are also required as breakdowns are becoming very frequent. In case of a breakdown, Bangalore will be faced with risk of a serious failure of supply. Immediate action is therefore necessary to replace the pumps and also to take up the second stage of the project, which includes the following works :—

(1) Raising the weir and dam levels by 10 feet.

(2) Construction of 3 units of clari-floculators of total capacity of 8 m.g.d.,

(3) Installation of 5 additional filters of a capacity of 1·5 m.g.d. each with a new filter house,

(4) Construction of a pure water tank of 1 m.g.d.

(5) Installation of 2 more high efficiency pumps capable of delivering 6 m.g.d. each against 950 feet head.

The cost of these improvements with other attendant works was estimated to cost 36·5 lakhs in 1947 and the matter has been under consideration of Government and the Corporation from that time. Even if the works are ordered to be taken up at once, it will take at least 2 years to complete them. These improvements are expected to ensure a supply of 16 million gallons a day which will give an average supply of 20 gallons *per capita* for the present population. The Committee consider the execution of these works as very urgent if Bangalore is to be saved the calamity of a water famine.

121. *Distribution system.*—The distribution mains were laid in the period 1900 to 1920, when the population of the City was about 1,50,000 to 2,50,000. The population of the City now is 8,00,000 and is still growing. Many improvements have been carried out in the City area and new feeder mains have been laid. Since the population has increased 4 to 5 times, the size of these

mains is inadequate for present conditions and it is necessary to lay duplicate mains to cope with the requirements. The original street distribution system consists almost entirely of 1 inch to 1½ inches G.I. Pipes, many of them laid in conservancy lanes. The life of G.I. pipes is about 15 years and most of the pipes are corroded and leaky. Consequently, the water supply of the City is liable to get contaminated with sullage flowing in the conservancy spaces and is a public health hazard. Moreover, these pipes are not of adequate size to meet the needs of the increased population. It is urgently necessary to replace these mains by 3 inches to 4 inches C.I. pipes.

Conditions in the Civil Station area are similar, being if anything, a little worse than in the City. The High Ground reservoir which feeds the Civil Station has a capacity of only 4 million gallons, hardly sufficient to store even 24 hours' supply. The reservoir has two outlets. A 14 inch outlet feeds the 14 inch northern main and a 16 inch outlet feeds the 16 inch southern main and a 15 inch central main. Owing to many extensions in the northern area and the inadequacy of the northern main, supply of water to the Extensions of Benson Town, Richards Town, Fraser Town and Cookes Town is very inadequate and water is available only late at night. The tail end of the southern and central mains also suffer on account of inadequate supplies. The approximate cost of improvements to the distribution system of both the City and Civil Station is about Rs. 130 lakhs, as per details noted below :—

	Rs.	
Replacing old and unserviceable mains ...	30	lakhs.
New Feeder-mains	45	,,
Service Reservoirs	45	,,
Purchase of Meters	10	,,
Total ...	130	,,

We understand that the Corporation Engineer has in consultation with the Water Supply Department submitted a 3 year programme of works to effect improvements as noted below :—

City Area.

		Rs.	
1	Purchase of 7,000 meters ...	4·90	lakhs.
2	Replacement of about 30,000 feet of 1½ inches mains out of 1,50,000 ...	1·50	,,

		Rs.	
3	Laying new 3 inches sub-mains ...	3·00	lakhs.
4	Laying new 6 inches to 12 inches feeder lines	3·00	,,
5	Purchase of 18 inches main to Binny Mills	1·00	,,
	Total ...	13·40	,,

Civil Area.

		Rs.	
1	Purchase of meters (3,000) ...	2·10	lakhs.
2	Replacing 1½ inches G.I. Pipes ...	1·60	,,
3	New 3 inches G.I. sub-main ...	1·70	,,
4	A 15 inches Trunk Main and 6 inches, 9 inches and 12 inches feeder mains ...	7·50	,,
	Total ...	12·90	,,

Total cost of the improvements included in the 3 year programme is Rs. 26·30 lakhs.

The carrying out of these improvements is urgently necessary to ensure the supply to some of the localities which are inadequately served at present.

Improvements and additions to the whole distribution system, including construction of service reservoirs, is estimated to cost about 130 lakhs, as already stated. We recommend that a further 5 or 10 year programme in continuation of the present 3 year programme, be drawn up to execute these works.

122 *New Source to augment the present supply.*—The Mysore Engineers Association considered the problem of water supply to Bangalore in 1944-45 and came to the conclusion that the maximum safe yield (that is, taking into account complete failure of monsoons in 3 consecutive years) will be about 16·5 million gallons a day both from Chamarajasagar Reservoir and Hessarghatta after the second stage work on the reservoir is completed. This quantity gives only about 20 gallons *per capita* per day for the population of 8 lakhs of to-day. Under the present day conditions and for a City like Bangalore, 20 gallons *per capita* daily is hardly sufficient. One or two decades back the water supply required was mainly for domestic purposes. Bangalore is now an industrial City and this fact also is to be taken into consideration in assessing our present and future needs.

Thirty gallons *per capita* per day, should be considered as necessary for our needs on the assumption that large chemical industries requiring enormous quantities of water will not be started in Bangalore Area.

Domestic consumption including flushing-outs	...	20 gallons.
Industries	...	5 ,,
Other needs (fire protection, floating population, wastage, etc.)	...	5 ,,
Total	...	30 ,,

Judging from the population trends of the City as discussed earlier, it will be safe to assume a population of 2 million as the basis for designing a new water supply scheme as a long range measure. The daily requirements would therefore be 60 million gallons.

The Chamarajasagar reservoir and Hessarghatta reservoir give a safe yield of about 16·5 million gallons and therefore the new water supply project should be so designed as to be ultimately capable of yielding about 45 million gallons per day.

123. The sources of water supply to Bangalore have been examined in detail by several Engineers and Committees from 1881 onwards.

The available sources are—

(A) *The Arkavati Basin.*—This water—shed has already been utilised by the construction of two reservoirs (i) Hessarghatta and (ii) Chamarajasagar. It is possible to construct another reservoir near Ramanagar to impound the waste weir discharges of Chamarajasagar and also the discharge from an independent catchment of 74 square miles at the point. The maximum quantity of water that could be obtained would be about 10 to 12 million gallons which is not sufficient to cover fully even the present day requirements of Greater Bangalore. The construction of a reservoir on the same scale as Chamarajasagara would be necessary and the water would have to be pumped against a head of 1,000 feet. Since this source does not lend itself for further expansion, utilisation of these waters is not recommended.

(B) *The Pinakini Basin.*—Is not capable of meeting the demand.

(C) *Underground supply.*—An examination of records of a number of tube wells in the City shows that the quantity of underground water available in the Bangalore area is negligible and cannot be relied on for the City's water supply.* It may however be worthwhile to have the matter further examined by the specialist agency that is being set up under an operational agreement between India and U.SA. to conduct an All India Survey to find out sub-soil water potentialities.

(D) The nearest perennial source is *the Cauvery Basin.*

124. A Committee of the Mysore Engineers' Association considered the problem in 1944-45 and recommended to Government that surveys be conducted to examine the question of bringing water from the Cauvery basin. Government sanctioned these surveys in Government Order No. P.W. 3041-42, of the 30th November 1944. The then Executive Engineer, Water Supply Division, conducted these surveys and prepared a detailed scheme:

Postulating that the Irwin Canal tract is capable of yielding about 45 million gallons per day, which could be supplemented, if necessary, by pumping from the Cauvery River at Sivasamudram Anicut, the scheme provides for—

(1) Constructing a low masonry lifting dam at Husgur Village on the Shimsha River into which Visvesvaraya Canal Tract drains. The lowest gaugings of water in summer show discharges varying from 95 to 116 cusecs or 51 to 62 million gallons per day.

(2) Pumping water from Husgur to Channapatna, (17 miles), where filters and pure water tanks would be constructed.

(3) Pumping water from Channapatna to the southern Reservoirs of the City (Byrasandra and Mount Joy Reservoirs) making it possible to develop satellite towns on the way to Bangalore.

(4) Executing the project by stages, pumping and filtering units to supply 15 million gallons being installed in the first stage and new units added as required.

The scheme for a plant of capacity of 15 to 16 m.g.d. (first stage) with a 42 inches Cast Iron Pipe rising main would cost about 3½ Crores (1945 rates). The

* A list of bore-wells sunk in the Bangalore Corporation limits and the yields obtained is given in Appendix D.

working cost per 1,000 gallons delivered at Bangalore would be 8½ to 9¼ annas against 8¼ to 8½ annas then being incurred under the Chamarajasagar Scheme, which included 3 per cent interest on capital and a depreciation of 1½ per cent per annum.

The Chief Engineer, Public Works Department, who scrutinised the scheme was of the opinion that water should be pumped direct from Sivasamudram Anicut as it was likely that tail waters of Irwin Canal Tract may be exploited for further irrigation and if this happened, the quantity of water available would be reduced.

The scheme was placed before the Committee for Co-ordination and Finance appointed by Government in Order No. SR. 733-822/E.C. 65-44-C, dated the 15th August 1945, under the Chairmanship of *Rajamantrapravina* Sir Albion Rajkumar Benarjee, M.A., C.S.I., C.I.E. The Committee in their report dated 31st October 1946 has remarked—

"It (the Cauvery Water Scheme) was considered. But such a costly scheme depends on the necessity for the same and that such a necessity was not likely to be felt in the near future. Accordingly, it was resolved that the scheme though not necessary in the immediate future might be kept in view for serious consideration after watching the growth of population (page 141 of the report).

125. This Committee is of the opinion that the time has arrived when the scheme should be considered. The estimated population of Bangalore today, including that of the outskirts just beyond the Corporation limits, is about a million. The City is still growing. Finding a new source of water supply for Bangalore is an inescapable problem. We recommend that detailed estimates may be prepared on the basis of present day costs and steps taken to get the scheme ready for execution as early as possible.

126. *Control and Distribution.*—The authorities responsible for the supply of water and its distribution are now as follows :

(1) Development of water resources, filtration and pumping : Financed and controlled by Government.

(2) Distribution system in the City : Controlled by the Government in the Public Works Department but financed by the Corporation.

(3) Distribution in the Civil Station Area : Controlled and financed by the Corporation.

The dual responsibility thus devolving on the Corporation and the Government has not resulted in smooth and efficient work. The Committee are of the opinion that there should be one statutory authority charged with the responsibility of supplying an adequate quantity of water and arranging for its proper distribution in the City. We recommend that a statutory corporation designated "Bangalore Water Board" or "Bangalore Water Supply Corporation" be set up for this purpose. The existing water works may be handed over at an agreed valuation to the new Corporation, which would issue to the Government and the Bangalore City Corporation shares of a value corresponding to their respective interests in the undertaking. Additional capital for improvement to existing works or for new works may be raised by the issue of shares or debentures open to public subscription. A system of easily transferable water bonds may be evolved and every applicant for new house connection may be required to purchase bonds of a specified value before the connection is given. The Board of Directors would include representatives of the Government, the Municipal Corporation and other share-holders. The Corporation should be required to manage the undertaking on a commercial basis and charges for the use of water should be fixed, with the approval of Government, at rates which, besides covering the cost of maintenance including depreciation, would give a fair but limited return on the capital at charge. We feel that such an arrangement would help to secure greater economy and efficiency in working and more ready and intelligent response to public needs than is possible under the existing system of mixed administration.

CHAPTER XV.

Underground Drainage and Sewage Disposal.

127. Although Bangalore was until recently divided into two units of Municipal Administration, *viz.*, the City under the administrative control of the Mysore State and the Civil and Military Station under the control of the Government of India, the development of underground drainage systems in both the units has proceeded on similar lines. But the rate of progress has not been uniform. While practically the whole City is provided with underground drains, only about 1/3 of the Civil and Military Station area is so equipped.

128. A complete scheme for the City drainage was prepared by Mr. D. Cruz in the year 1917, for the old town and extensions as they then existed. The estimated cost of the scheme was Rs. 19,08,400 and was based on what was called the separate system. The old town, including the extension of Visweswarapuram and the Fort area, is founded on a broad sloping valley, convenient for one common drainage, while the other Extensions have come up on very rough country which does not admit of draining by gravitation into one common outfall. In Mr. D. Cruz's scheme the sewage of every other portion was proposed to be pumped into the main Koramangala Valley outfall at Sunkal Farm. The pumping proposed was by Shon's Ejector system worked by compressed air. For want of adequate water supply no provision was made for water closet system and the scheme did not provide for any treatment and disposal except sewage farming as practised in Bangalore for a long time before. For various reasons, such as heavy cost involved, paucity of water supply, etc., Mr. D. Cruz's scheme as a whole was not sanctioned, though bits of work were sanctioned and carried out in various parts of the City as a part of the whole scheme.

This scheme was subjected to further scrutiny in 1927. Mr. J. Bhore, the then Chief Engineer of Mysore, who examined the scheme, disapproved of the idea of having one outfall and of pumping sewage from the adjoining valleys into the main valley as it involved heavy expenditure, both capital and recurring. S M. Visvesvaraya, who was consulted in the matt·

agreed with Mr. Bhore and recommended the idea of disposal of the sewage from the several valleys in their respective outfalls.

No revised scheme for the City was immediately prepared, principally because the water supply problem of the City had not been solved and it was thought that underground drainage should be taken up only after adequate water supply was made available. By 1940, Thippagondanahalli Reservoir had been completed, assuring an adequate supply of water and the question of the extension of underground drainage was therefore taken up. A comprehensive drainage scheme for the whole city and its extensions was prepared by Mr. N. Krishna Iyengar the then Special Officer of the City Drainage Division.

The estimated cost of the scheme was Rs. 41,25,141 as shown below :—

		Rs.
1.	Works already carried out ...	9,94,846
2.	Public convenience	15,000
3.	Sewers	5,500
4.	Submain sewers and street sewers and outfall sewers in different parts ...	18,69,936
5.	Disposal works	8,00,000
6.	Acquisition charges	4,39,859
	Total ...	41,25,141

Four outfalls were provided—

1. The Koramangala outfall at Koramangala Tank bed draining the whole of the old town, parts of Basavangudi, the whole of Visweswarapuram, Mavalli and Fort Area. Richmond Town, Langford Town and Neelasandra in Civil and Military Station also drain into this outfall.
2. The Magadi Road outfall beyond Magadi Road in Kempapur Agrahar Tank bed draining Highground, Seshadripuram, Palace-Guttahalli, Venkatarangapuram and Malleswaram.
3. The Kempambudhi Tank outfall behind the tank bund draining Chamarajpet, Gavipur, Sankarpur and parts of Basavangudi.
4. Chennammanakere outfall just south of Tata Silk Farm Extension.

It was proposed that disposal works for sewage be carried out at these different valleys. Though provision was made in the estimate for treatment of sewage

in Koramangala Valley by the simplex system of activated sludge process, the Special Officer recommended that for Bangalore conditions, disposal of sewage by land irrigation might be adopted, as being the most suitable.

129. *Present position* :—All work under the comprehensive Drainage Scheme as sanctioned in 1941 is nearly completed, except a section of the outfall sewer in the Vrishabhavathi Valley from Hanumanthapur Septic Tank near the City Railway Station to just beyond Magadi Road. Sewers have been laid in about 1/3 of the area of Civil and Military Station. The situation now is :

(1) *Koramangala Valley.*—The sewage at this outfall is dropped from the ovoid sewer into the storm water channel at the head of the Koramangala Tank, which has been breached. A portion of the raw sewage is used by the Government Horticultural Farm in the tank bed for raising vegetables and grass. Some quantity of raw sewage is also used for growing grass in the atchkat of the tank where about 150 acres of land have been acquired for the purpose. The Channel is bunded up here and there by the owners of cultivable lands on either side to divert the sewage on to their lands. The rest of the sewage finds its way into Shinvegal Tank further down the valley. The land which has been acquired under Koramangala Tank is neither adequate for the disposal of all available quantity of sewage at the outfall nor suitable for the purpose, as the soil is clayey and water-logged.

(2) *Chellaghatta Valley.*—Draining the Civil and Military Station area. The sewage in this valley is now dropped into Chellaghatta Tank. Raw sewage from the masonry outfall sewer is tapped unauthorisedly by cultivators all along the drain and used for cultivation. The tank itself where the raw sewage is dropped is close to the Military Hospital and other Military installations.

(3) *Vrishabhavathi Valley.*—There are at present two outfalls in this valley.

(*a*) The outfall near Hanumanthapur septic tank close to the City Railway Station, and

(*b*) below Kempambudhi tank.

The sewage in both cases is dropped into storm water drains leading into Vrishabhavathi rivulet. The raw sewage is tapped by cultivators and what remains finally flows into Byramangala Tank.

(4) *Chennammanakere outfall.*—The sewage is now dropped into the storm water drain south of the residential extension of Tata Silk Farm, and flows into Chennammanakere. Raw sewage is tapped for cultivation purposes all round.

(5) *Munireddypalya outfall.*—Sewage is dropped into the storm water drain which eventually finds its way into Ulsoor Tank. The quantity of sewage available being small is used up on the way for cultivation purposes.

130. From the above description it will be seen that the sewage of the City is dropped into storm water drains flowing in all directions away from the City. These storm water drains are bunded up in many places by the cultivators who unauthorisedly use the raw sewage for agricultural purposes. The result is that stagnant pools of sewage are formed all round the city with the attendant putrefaction and emanation of bad smell which is a nuisance to the surrounding localities. These stagnating pools are also hot-beds for breeding musquitoes. The streams of untreated raw sewage are contaminating the sources of water supply of the villages all round the Bangalore City and have become a big public health hazard.

The need for the proper disposal of sewage has become very urgent in the interests of the health of the City. A resolution was passed at a meeting of Officers of the Corporation and Members of the Improvement Trust Board, Bangalore, held in the Chambers of the Mayor of the Corporation, on 25th March 1950, requesting the Government to appoint a committee of experts for the disposal of sewage in Bangalore. After examining the question in all its aspects, Government considered it necessary that the scheme of disposal of sewage in Bangalore and allied matters should be got examined without delay in the interest of the health of the citizens of Bangalore and particularly on account of its rapid development in all directions, and appointed a Committee under the Chairmanship of Sri C. N. Narasing Rao, B.A., B.L., the then Chairman of the City Improvement Trust Board. This Committee went into the matter in great detail and submitted their report to Government in the Chairman's Letter No. G. 740/50-51, dated the 13th February 1951. The Committee took note of the post-war development of the City and its possible expansion

in the next 30 years. They recommended preliminary treatment of sewage by sedimentation and secondary treatment by land irrigation in seven sewage farms—two Major and five Minor—as follows :—

(1) Agaram Plain—for disposal of sewage from Koramangala and Chellaghatta Valleys.

Land required here for the farm when it is fully developed is 1,650 acres, out of which 1,200 acres is now vested in the Central Government—Defence Department, and used as a grass farm. It was proposed that the State Government should approach the Central Government to make this land available for disposal of sewage. If the Military authorities wanted to grow grass themselves they might retain the requisite area and in that event preliminarily treated sewage effluent could be sold to them on terms mutually agreed upon. The balance of 450 acres required for this farm would be irrigated by sewage water subjected to preliminary treatment at the present outfalls or nearby and then pumped on to the top of the ridge of the Agaram Plain for distribution on land.

This land treatment scheme is possible only if the Military can make the land on the Agaram plain available for the sewage farm. If this is not possible, it has been proposed as an alternative that the secondary treatment of sewage be carried out by Bio-filtration method at Koramangala and Chellaghatta tank beds and the effluent dropped into the natural storm water drains.

(2) Near Kenchenahalli on the Bangalore—Mysore Road—for treatment of sewage of the Vrishabhavathi Valley.

The site selected is such that the sewage of the new Industrial Suburb can also be treated here. Land required when the farm is fully developed is 700 acres. Suitable land is available. Here also the sewage after preliminary treatment is proposed to be pumped on to the ridge for distribution for land treatment.

(3) Below Channammanakere tank bund—About 50 acres of land would be required for the treatment of sewage from south-western part of the City.

(4) Near Hanumanthapur (North-west of the City)—Land required is 50 acres for treatment of sewage from that part of Munireddypalya and Military barracks which drain northward.

(5) Madivala—50 acres for sewage from south of Jayanagar.

(6) Tavarekere—50 acres for serving middle east Jayanagar.

(7) A mile below the Industrial Suburb—

Two hundred acres for treatment of sewage from Industrial Suburb.

Out of these, treatment of sewage at outfalls of (1) Koramangala, (2) Chellaghatta, (3) Kenchenahalli, and (4) Chennammanakere, is very urgent and requires immediate attention. Disposal at other outfalls can await further development in the areas, possibly for a decade.

Design period for the disposal schemes has been taken as 30 years and the work is proposed to be carried out in three stages :—

I Stage : Rs. 99 lakhs to be completed in 5 years.

II Stage : Rs. 25·25 lakhs to be taken up after 10 years or as required.

III Stage: Rs. 9·25 lakhs to be taken up after 20 years or as required.

These costs include cost of extension of sewers to the proposed sites of treatment.

The Expert Committee has also proposed that the underground drainage in the remaining areas of the City and Civil Station be completed at a cost of Rs. 100 lakhs on a 15-year programme.

131. We understand that the Bangalore Corporation has before them a three-year programme prepared by the Corporation Engineer, estimated to cost Rs. 20·70 lakhs, as per details noted below :—

		Rs.
City Area.		
Balance payment for the comprehensive drainage scheme of 1941 now nearing completion.		2,50,000
Extension of the system in other City areas	...	5,70,000
Civil Station Area.		
Providing Duplicate Main sewers	...	4,30,000
Provision of sewers in other congested areas	...	8,20,000
Total	...	20,70,000

The works included in these schemes are urgent and will go a long way in improving the health of the localities concerned. It is hoped that the Corporation will be able to push through the programme.

132. *Recommendations.*—We agree with the proposals of the Sewage Disposal Committee generally. The proposals cover all the areas like Jayanagar Extension and Industrial Suburb that are under development at present. If further extensions take place and satellite towns are built to serve the needs of the employees of the Hindustan Air Craft Factory, the Indian Telephone Industries and the Machine Tools Factory, independent schemes for sewage disposal will have to be provided.

133. Disposal by land irrigation is best suited to the conditions of Bangalore. Abundant water-starved land suitable for cultivation by application of sewage is available. As water is not available for dilution before its application to land, preliminary treatment of sewage by sedimentation to remove the settlable solids is essential to prevent the land getting rapidly sewage sick.

The only land available for treatment of sewage of Koramangala and Chellaghatta valley is the Agaram plain which is vested in the Central Government Defence Ministry. The State Government should make every effort to persuade the Government of India to make this land available in the interests of the public health of the City and the Grow More Food Campaign.

134. The Sewage Utilisation Officer of the Government of India has suggested that only land required for locating the treatment plant and for an experimental farm need be acquired and that the preliminarily treated sewage effluent be sold to the cultivators at reasonable rates. This method may be tried to save land acquisition costs.

135. Proper disposal of sewage in Bangalore is long overdue. We understand that the Government of India has a scheme to issue loans to State Governments for utilization of sewage in the interest of Grow More Food Campaign. Full advantage of these loans may be taken to carry out the disposal works.

136. Bangalore is an important Military Station and large areas in the City are vested under the control of the Central Government. We agree with the Expert Committee that it is reasonable to expect the Government of India in the Defence Department to pay a contribution towards the cost of Disposal Works.

CHAPTER XVI.

Plan of Greater Bangalore in outline.

137. The population of the Bangalore City is nearly eight lakhs, having increased from decade to decade at percentages varying from 19 in 1901-11 to 90 in 1941-51. Taking the old City alone, the growth of population during the last decade was over 100 per cent. If the future increase of population is estimated on the most conservative basis, of say, 12½ per cent per decade, it will not be long before the City population will reach the figure of one million. This is the minimum population whose housing, water supply and other civic needs must be taken into account in any city plan, however short the period for which it is framed. It would be wise to divert new activities—industrial, administrative and military—to other centres as far as possible and relieve the strain on the city services, particularly water supply, which it will take several years and a good deal of money to augment. But even if a policy of decentralisation were steadily and rigorously pursued by the State Government and other authorities, it is hardly to be expected that the centripetal forces which bring an inflow of population into the city every year could be fully held in check. In any case, the normal increase of population representing the preponderance of births over deaths must necessarily be provided for. For this reason, we take a population of one million as the basis for immediate City Planning and two millions for long range purposes. These figures are exclusive of the population of the adjoining villages which may be 20 to 25 per cent of the population of the City proper.

138. To frame a really useful Master Plan for Greater Bangalore, considerable investigation would be needed as will be evident from the note of Mr. B. R. Manickam forming Appendix B. But the main features of such a plan could be gathered from what we have stated in the earlier chapters of this report. These may be recaptulated here so as to give a bird's eye view of Greater Bangalore as we visualise it.

139. Appendix C gives the standards of residential density that have been adopted for Bombay and London as being suitable for modern town planning scheme-

Having regard to local conditions, the following target figures of residential density may be kept in view for Bangalore :—

		Density per acre	
		Net	*Gross*
1	Older parts of the City and Civil Station.	200	143
2	Other suburban areas (existing Extensions).	150	94
3	Neighbourhoods and Townships to be formed in future.	100	63
4	Rural areas in Greater Bangalore ...	50	33

The target figures above suggested can have only a notional value although they might be useful for determining the location of new extensions and allotting priorities for thinning out high density pockets.

140. In conformity with the population trends as noted above, the administrative boundaries of the City will have to be redrawn.

(1) The City Improvement Trust Board has developed the residential Extension of Jayanagar in the South and the Industrial Suburb in the West. It is desirable that both these Extensions, and a few other contiguous areas, as shown in the plan of Greater Bangalore (Appendix G) are included within the territorial limits of the Corporation.

A belt of land about a mile wide all round the Corporation limits may be preserved as a green belt. Any further building in this area is to be prohibited except where absolutely necessary to provide for the normal growth of the existing villages.

(2) The Trust Board is vested with jurisdiction in respect of lands within three miles of the Corporation boundary. Instead of adopting such an imaginary line which cannot be determined on the ground without elaborate inquiry, it is suggested that the villages coming more or less within the sphere of Greater Bangalore be specified by name and notified as constituting the area to which the Bangalore City Improvement Act applies. The outer boundaries of the villages on the periphery would then constitute the boundary of the Trust Board area.

The area of the Bangalore City Corporation would then be approximately 40 sq. miles and that of the Trust Board (*i.e.*, Greater Bangalore) about 150 sq. miles.

As new neighbourhoods and townships come into being beyond the green belt, the territorial boundaries of the Trust Board could be suitably shifted outwards.

141. The existing pattern of the City, which would be essentially preserved, consists roughly of 5 zones.

(1) Administrative Zone which includes the area occupied by the Central Offices of Government, areas vested in the Military authorities and the University centre.

(2) Commercial Zone,

(3) Industrial Zone,

(4) Residential Zone.

(5) Agricultural Zone.

142. *Administrative Zone.*—This area extends from North-West to South-East and divides the city into two halves. It includes—

(1) The Indian Institute of Science,

(2) The Palace and Palace Orchard,

(3) Golf Course and Race Course,

(4) The Residency,

(5) Public Offices,

(6) Cubbon Park,

(7) Parade Ground, and

(8) The areas vested in the Military Authorities.

The total area of this zone is approximately 5 sq. miles. This is a very sparsely built area and the long stretch of open spaces that it contains form a valuable asset of the City.

In this area are situated—

(1) The Government Soap Factory,

(2) The Central Industrial Workshop,

(3) The Central Jail.

143. According to our recommendation, the first two will be shifted to the Industrial Suburb and the Central Jail to a suburb in the City or some other place beyond the City. (Now that it is settled that Bellary would be transferred to Mysore, the buildings of the Central Jail, Borstal School etc. at Bellary could well be utilised for similar purposes by the Mysore Government.) The Jail grounds and other private properties in this area (to be acquired as opportunity offers) would be available to the University, which would have an extensive campus running along the Palace Road from the Central College to the new College of Commerce.

144. *Commercial Zone A.*—South-West of the Administrative Zone is the present combined commercial and residential areas of the city, which are very thickly populated with a density of 150 to 500 per acre. They are the oldest parts of the City and require replanning. Most of the houses are centuries old. It is necessary to reduce the congestion of the area to a gross density of about 140 per acre. This cannot of course be done immediately. As the buildings become unsafe for use owing to natural deterioration, they must be ordered to be demolished and the land acquired by the Corporation until the area is sufficiently thinned. Open spaces, 200′ × 300′ or 400′, should be created, half a mile apart, by acquiring and demolishing houses in suitable places, and equipped as minor parks.

145. The site of Bamboo Bazaar, which is to be shifted to Magadi Road, would supplement Chickpet and Avenue Road as a subsidiary shopping and business centre.

146. *Commercial Zone B.*—This is situated in the area surrounding Russell Market. The conditions in this area are similar to those of Commercial Zone A and require similar treatment. With the tendency of commercial houses to establish head offices or branches in Bangalore, it is likely that the area between the Market and Cubbon Road and that between South Parade and Residency Road might gradually become a business zone.

147. *Industrial Zone A.*—Within the Corporation limits.—

The area North of 18th Cross Road, Malleswaram, and West of—

(*a*) Road parallel to Railway line in Malleswaram,
(*b*) Subedar Chatram Road,
(*c*) Platform Road,
(*d*) Arlepet Road,
(*e*) Mysore Road, and
(*f*) 9th Cross Road (Chamarajpet),

may be described as the Industrial Region.

148. The three big cotton mills employing between them about 12,000 persons together with many other industries are located in this region. The City Improvement Trust Board has proposed an Extension further to the West of this region. This area, comprising some 5,000 acres has been surveyed and the City Improvement Trust Board

has proposed a comprehensive scheme for its development. Sites for industries and residential extensions have been proposed complementary to each other.

149. There is a natural valley between the old and new Industrial Suburb, which should be preserved as open space.

150. All new industrial units (small and medium) should be accommodated in this zone and encouragement should be given to existing industries to shift there. It follows that no further permission should be given to start new industrial concerns in the residential areas or to expand those which are already established there. The only exception would be industries using less than 5 H.P. and catering to the needs of the local community, *e.g.*, small flour mills, laundries, workshops for repair and servicing of motor vehicles.

151. *Industrial Zone B.*—This comprises the area between the Broad Gauge Railway lines to Hindustan Aircraft Ltd. and Jalahalli and the proposed Circular Road, which would be reserved for any new large scale industries that may have to be located in the vicinity of Bangalore.

152. *Residential Zone.*—This would comprise the following :—

(*a*) The older and congested parts of the City and Civil Station—to be improved and thinned out gradually keeping in view a residential density of 140 per acre.

(*b*) The existing Extensions, including areas mainly containing bungalows standing in their own grounds. In respect of these, strict attention should be paid to maintenance and prevention of over-building. Residential density not to exceed 94 per acre.

(*c*) Areas in which slums have been improved on the lines indicated elsewhere.

(*d*) New satellite towns laid out on modern principles of town planning, with due provision for open spaces, schools and play-grounds and a sufficient number of shops well distributed over the area. The towns would be physically separated from each other and from built-up areas of the old city.

The satellite towns in immediate contemplation are :—

I. A Town between Madras and Dommalur Roads towards East of Hindustan Aircraft Factory, to provide housing for employees of Hindustan Aircraft and other industries that may be started in the vicinity

II. A Town near Krishnarajpur for employees of the Indian Telephone Industries.

III. A Town on western side of Bangalore-Bellary Road, North of Hebbal. To provide for housing of employees of Machine Tools Factory.

IV. One Town on Banswadi Road, North of Bangalore—Jalahalli Railway Line.

V. One Town on Tannery Road, North of Bangalore—Jalahalli Railway Line.

153. *Agricultural Zone.*—In addition to the above, there would be an agricultural zone comprising (*a*) all agricultural lands within the limits of Greater Bangalore beyond the Corporation Boundary and (*b*) an area of about 2,000 acres of revenue land situated within the Corporation limits. In this zone, the conversion of agricultural land to other uses would be prohibited, except with special permission, which should be given only to provide for the normal expansion of villages and for well considered housing schemes.

154. There would thus be "a continuous green background of open country" all round the city together with strips of green patches of varying sizes within the city limits "in which are embedded at suitable places compact spots of red" representing existing villages and new authorised housing schemes.

155. In this zone, areas suitable for brick making and stone quarrying should be allotted within easy reach of the City's residential areas and the indiscriminate use of land for such purposes should be prevented. In all cases, it is necessary to enforce the regeneration of the site (by levelling and otherwise) after the workings are exhausted.

156. *Educational Institutions.*—All University Institutions, with the exception of the Medical School, will be in the University Campus which will be a compact area including the grounds of the Central Jail (when it is shifted elsewhere) and a few private properties on Palace Road to be acquired when opportunity occurs.

157. As far as possible, sites will be acquired and buildings constructed for the existing Middle and Primary Schools which are held in rented buildings, and for new schools that may be opened in order to give effect to the policy of compulsory elementary education. New High Schools and play-grounds will be located in available open spaces, including those military lands which could be spared for the purpose.

158. *Open Spaces and Public Recreational Facilities.*—In addition to the existing public gardens, parks, etc.—

(1) small open spaces, at distances of half a mile from each other, will be created in congested parts of the City,

(2) agricultural lands in the city limits including market gardens will be maintained as open spaces and construction of buildings thereon (except for special reasons) strictly prohibited,

(3) The area around Mount Joy, all tanks containing a perennial supply of water and a few other places which have a landscape value will be preserved and improved.

159. *Communications.*—The main developments contemplated are :—

(1) Extension of the City Railway Station towards Dharmambudi Tank,

(2) a new goods-shed near Yeswanthpur,

(3) a broad circular road skirting the city for diverting traffic on the trunk roads,

(4) a few roads running North and South to relieve traffic congestion in the old city, and

(5) development of the air-strip in Jakkur as a proper air-port.

160. *Water Supply and Drainage.*—Lastly, the plan postulates satisfactory water supply (at the average of 30 gallons per head) and the extension of underground drainage system to all parts of the city.

161. *Zoning.*—The proposals for zoning and certain other features of the Master Plan are shown in the map forming Appendix F.

CHAPTER XVII.

Planning Legislation.

162. If town planning and development are to be undertaken in a large number of Towns and for rural areas, special legislation of an All India pattern may have to be enacted. But as we are dealing only with the development of one particular City and the rural areas adjoining it, we need not enter on that wider general question. So far as Bangalore is concerned, the Bangalore Corporation Act and the Bangalore City Improvement Act, together with certain provisions in the Village Panchayets and District Boards Act and the Land Revenue Code already provide the legal groundwork for planning and development. With some amplifications and amendments, these enactments may be found sufficient to secure the limited objectives that we have set out in this report, pending the enactment of suitable All India legislation.

163. The scope and object of the amplifications and amendments proposed by us are summarised below : —

It is necessary that Improvement schemes, with detailed plans, should be prepared for the whole of the area included in the Corporation limits and some of the adjoining villages, as it is only on the basis of such plans, when they are sanctioned by Government, that proper planning control could be exercised. But these schemes, need not necessarily be comprehensive nor follow a uniform pattern. They should be suited to the needs of each area and the scope it offers for improvement at reasonable cost. In order to secure the necessary flexibility in planning, we consider that Section 15 of the City of Bangalore Improvement Act may be recast as follows on the lines of Section 4 of the Madras Town Planning Act :—

" 15. A town-planning scheme may provide for all or any of the following matters :—

(*a*) the laying out or re-laying out of land, either vacant or already built upon, as building sites or for any of the purposes mentioned in this section ;

the construction, diversion, extension, alteration, improvement or closure of streets, roads and communications ;

(*c*) the construction, alteration, removal or demolition of buildings, bridges and other structures ;

(*d*) the acquisition by purchase, exchange or otherwise, of any land or other immovable property within the area included in the scheme whether required immediately or not ;

(*e*) the redistribution of boundaries and the reconstitution of plots belonging to owners of property comprised in the scheme ;

(*f*) the disposal by sale, exchange, lease, or otherwise of land acquired or owned by the Board ;

(*g*) transport facilities ;

(*h*) water-supply ;

(*i*) lighting ;

(*j*) drainage inclusive of sewerage and of surface draining and sewage disposal ;

(*k*) the allotment or reservation of land for streets, roads squares, houses, buildings for religious and charitable purposes, open spaces, gardens, recreation grounds, schools, markets, shops, factories, hospitals, dispensaries, Government and municipal buildings, and public purposes of all kinds ;

(*l*) construction of houses ;

(*m*) the preservation of objects and buildings of archæological or historic interest or of natural beauty or actually used for religious purposes or regarded by the public with special religious veneration ;

(*n*) the imposition of conditions and restrictions in regard to the character, number, architectural features and height of buildings allowed in specified areas and the purposes to which buildings or specified areas may or may not be appropriated ; and the provision and maintenance of sufficient open space about buildings ;

(*o*) the suspension, restriction or modification so far as may be necessary for the proper carrying out of the scheme, of any provision in the City of Bangalore Municipal Corporation Act, Village Panchayets and District Boards Act, or in any rule, bye-law or regulation made under the said Acts and in force in the area included in the scheme ;

(*p*) the advance to the owners of land or buildings comprised within the scheme, upon such terms and conditions as may be provided by the scheme, of the whole or part of the amount required for the erection of buildings or for the carrying out of the works, alterations or improvements in accordance with the scheme ;

(*q*) such other matters not inconsistent with the objects of this Act as may be prescribed.

The following section may be added as Section 18-A to City of Bangalore Improvement Act: –

> "18-A. From the date of the notification referred in Section 18, sub-section (1), all owners of lands and buildings in the area affected by the scheme who propose to construct or reconstruct or in any way alter or add to buildings shall conform in every particular with the requirements of such scheme; and no building shall be constructed or reconstructed in any area in which building is expressly forbidden in the scheme, or which is reserved in the scheme for any purpose incompatible with building."

164. In our letter No. BDC. 57—52-53, dated 9th December 1952, to Government, certain amendments to the City of Bangalore Municipal Corporation Act, the City of Bangalore Improvement Act, the Mysore Land Revenue Code, the Mysore Village Panchayets and District Boards Act, 1952, have already been recommended.

165. Reference is also invited to paragraph 52 in which an amplification of the Bangalore City Corporation Act has been proposed in order to regulate hutting grounds or *cheris*.

166. *Cost of acquisition of land.*—The cost of land is one of the most important single factors in the total cost of construction, and the inordinate rise in the cost of land at present is impeding the speedy development of housing. Even without any intention of profit making, the City Improvement Trust Board is unable to acquire virgin land in the neighbourhood of the City and develop it and make sites available at a sufficiently low cost. The main reason for this is the high rates of compensation that are now being awarded by the Courts for the land acquired. Under the provisions of the Land Acquisition Act as it stands at present, the "market value" of the land on the date of publication of the notification is to be taken into consideration for this purpose. The expression "market value" is not specifically defined in the Act, and it has been interpreted to mean the value obtainable in an open market for the land if put to its most lucrative use and it is held to include the value that a seller will be entitled to get on account of special adaptability of the land for building purposes. In other words, compensation is not awarded on the basis of the use to which the land is being actually put at the time but on the basis of its "potential" value also. The prospect of land in the vicinity of a

growing and prosperous city being needed in the near future for building purposes has often led to speculative deals in transfers of such lands at high prices, and prices so paid have been taken into account in the assessment of "market" value by the Courts for award of compensation when lands are acquired for public purposes. Holders of land who purchased agricultural lands not long ago at comparatively low prices, have thus been able to reap huge profits without any actual change in the use of the land, while on the other hand the rise in the cost of acquisition has made it difficult to make house sites available to the poor and needy at moderate cost.

Several authorities who have examined this aspect of the question, as also the Planning Commission of the Government of India, have therefore recommended that immediate steps be taken to amend the Land Acquisition Act, so as to permit the acquisition of land required for house-building purposes by award of compensation on the basis of the use to which it was actually put on the date on which it is notified for acquisition without any reference to its "potential" value. Probably, the matter is receiving attention by the Government of India also. We need only emphasise the need for urgent action in this behalf.

167. The amendments suggested above merely indicate the directions in which the existing law needs to be amended. The exact form of the amendments and consequential changes in the several enactments have to be examined carefully by the Departments concerned.

CHAPTER XVIII.

Concluding observations.

168. "The purpose of Town Planning is to utilise the available land to the best advantage of the community taking into consideration its various needs such as the provision of land for residential purposes, the development of agriculture and industries and the creation of recreational facilities."

It includes—

(*a*) Planning, *i.e.*, determination of the use or uses to which lands might be put, and

(*b*) Administration, that is to say, control of land use in conformity with the plan.

The planning and the administering authorities need not necessarily be the same and the two functions may be separated and vested in different bodies. This is now the case in Bangalore. Since the establishment of the City Improvement Trust Board, it has been, so to speak, the planning wing of the Municipal Administration, while the Corporation and its Officers constitute the administrative wing. With regard to those parts of Greater Bangalore, which are outside the jurisdiction of the Corporation, we have suggested that the Trust Board should be not only the planning authority, but to a limited extent, the administering authority as well.

169. Following the terms of reference to the Committee, though not in the order mentioned in Government Order No. 15125-36—I.T.B., 35-51-1, dated 18th March 1952, we have endeavoured to indicate in broad outline the manner in which areas of land might be allocated for agricultural, residential, industrial and business purposes, so that their future use and development might be regulated in conformity with the relevant purpose. Our proposals, though specific in some cases, are necessarily of a general character in others. They should be worked up into concrete schemes of improvement for each unit of the area. This is what Section 14 of the City of Bangalore Improvement Act contemplates. But only a few schemes of general improvement have been attempted so far, the attention of the Trust Board having been devoted mainly to new layouts and housing schemes.

We consider that the Board should immediately take up the detailed survey of the different parts of the City and prepare for each unit or block a plan showing the present layout and land use together with a scheme of improvements considered to be feasible and appropriate for the locality. Apart even from the question of improvement, these block maps are indispensable for intelligent municipal administration.

170. *Pari passu* with the framing of improvement schemes and plans, it is desirable to prepare and make arrangements always to maintain up-to-date a Record of Rights for all house properties and open spaces in the Corporation area. For agricultural lands coming within the scope of Greater Bangalore, a Record of Rights is already available (except for a few villages) and is presumably being maintained up-to-date.

171. It is obvious that if the Trust Board is to prepare plans of development covering the whole of the City within a reasonable length of time, it should have an adequate staff, including at least one Assistant Engineer who is specially conversant with the principles, technique and law of Town Planning. As the Health Survey and Development Committee has observed :

> "While some knowledge of Civil Engineering is necessary, a Town Planner is not merely an Engineer. Similarly, while he should know something of architecture, the Town Planner is not an architect, pure and simple."

172. To ensure continuity of work, the Board should also be given a suitable annual grant for the next 4 or 5 years. The Madras City Improvement Trust Act (Section 91 of Madras Act XXXVII of 1950) provides for a sum of Rs. 2½ lakhs being placed at the disposal of the City Improvement Trust every year from the Corporation Funds, an equal amount being contributed from the State Funds. Some such arrangement should be made for the Trust Board of the Bangalore City, although the amount may be smaller. This annual grant would be, of course, additional to appropriations to be made from time to time for special schemes, such as new extensions, housing schemes and drainage works.

173. Planning Administration devolves on the Corporation authorities. Although the Corporation is invested by law with extensive powers for this purpose, they have not been exercised in an effective manner, with the result

that some of the extensions have become congested and open lands in and near the City are being developed in a haphazard manner. Most of the members of this Committee and several gentlemen acquainted with the local municipal affairs, have expressed the view that strict administration and control of land use cannot be secured unless the decision of the Commissioner in such matters as granting of building licenses, regulation of streets, prevention of over-crowding, etc., are made final. So long as such orders are liable to revision by the Standing Committee or by the Corporation, there is no certainty that planning regulations will be strictly adhered to and non-conforming uses adequately dealt with. It might at first sight appear a retrograde measure to deprive the Standing Committees and the Corporation of some of their appellate powers but public opinion genereally seems to regard such a step as essential for healthy municipal administration. "There is no peculiar democratic virtue", it has been said, "in incompetent administration." It is understood that in some States action has already been taken in the direction indicated.

174. While strict administration is a *sine qua non* of successful Town Planning, public co-operation is also essential. Democratic institutions function at their best only against the back-ground of strong and well informed public opinion. It is a matter for gratification that Rate Payers' Associations in different parts of the City are taking a keen interest in the municipal administration of the City and that voluntary organisations such as the Gokhale Institute of Public Affairs are from time to time making detailed studies of local requirements and bringing them to the notice of the concerned authorities. Efforts of this kind should be encouraged.

175. In a recent address at the Bangalore Literary Union, Sir M. Visvesvaraya has observed :—

> "In Western countries, in America in particular, it is clearly recognised that the many-sided development of a modern city is largely the responsibility of its own citizens. Voluntary organizations and agencies are playing an increasingly important part in many spheres of city life."

After giving several illustrations of the beneficial results of people's activities in the civic administration

of Western cities, Sir M. Visvesvaraya has made the following suggestions :—

> "Arrangement should be made for civic agencies or associations to carry on a continuous investigation into the City's affairs and offer suggestions and proposals leading to improvement and reform from time to time.
>
> "An Institute of Municipal Research may be established. This should be purely a non-official organisation supported entirely by private funds. The main functions of such an institute would be :
>
> "To collect materials regarding the City administration and analyse its reports, etc., for the information of the public ;
>
> "To study foreign conditions and take out lessons from them for the City ; and
>
> "To act as an educative force, placing its digested knowledge before the public in a brief and understandable form."

We consider the above suggestions both useful and timely and commend them for the serious consideration of the authorities and the citizens of Bangalore.

176. We have been asked in our terms of reference to indicate roughly, wherever possible, the financial implications of our proposals. We have endeavoured to do this in all cases where the necessary data were readily available, as for instance, in the case of Water Supply and Drainage Schemes. But on most other matters no estimates of costs could be prepared without detailed technical investigation for which we have neither the time nor the requisite personnel. Even in regard to the water supply and drainage, it may be noted that the estimates were prepared on a rough and ready basis some years ago and they will have to be thoroughly revised before they could be accepted as a reliable basis for practical action.

177. For the same reason, added to extreme uncertainty as to the extent of the financial resources likely to be made avilable by the State Government for the improvement of the City, we have not attempted to arrange our proposals in any elaborate order of priority. But on the principle of first things first, we consider that immediate attention should be given to the following matters :—

(1) Augmenting supply of water from the Thippagondanahalli reservoir (for which estimates have long been pending) and improving distribution.

(2) Improvement of slums.

(3) Housing schemes on an adequate scale for persons working in the Hindustan Aircraft Limited, the Telephone Industries, the Machine Tool Factory and the

new factory proposed to be established near Jalahalli for the manufacture of Wireless equipment, as well as for the State-owned Government Electric Factory and Porcelain Factory.

(4) Fixing Street widths and building lines for important roads.

(5) Enactment of legislation on the lines suggested elsewhere in this report;

(6) Preparation of Block Improvement Plans for the whole of Greater Bangalore.

178. The Committee wish to place on record their appreciation of the valuable help they have received at all stages of the work from the Secretary, Sri D.S.R. Rao, and the Joint Secretary, Sri C. G. Ramaiya. The latter continued to work voluntarily for several months after the sanction for the payment of his salary had lapsed. The Committee also wish to acknowledge the services of Sri V. Hanumantha Rao Naidu, Assistant Architect, and the staff of the Drawing Section of the Office of the City Improvement Trust Board in preparing various maps and plans required for the use of the Committee.

N. MADHAVA RAU,
(*Chairman*).
R. MADHAVAN,
(*Vice-Chairman*).
P. HANUMANTHAIAH.
K. HENJERAPPA.
K. S. GANGADHARA.
T. CHANDRASEKARIAH.
H. S. SEETHARAM.
T. RANGAMALLIAH.
G. H. KRUMBIEGEL.
B. R. MANICKAM.
M. PALANIYAPPAN.
D'CRUZ (Captain).*
E. V. GANAPATY IYER.
J. B. MALLARADHYA.

C. G. RAMAIYA,
(*Joint Secretary*).

D. S. R. RAO,
(*Secretary*).

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* *N.B.*—Major Ahlu Walia was appointed as the representative of the Ministry of Defence. Since he was on leave, the last two meetings were attended by Captain D'Cruz and he signed the Report as representative of the Ministry of Defence.

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APPENDIX A.

GOVERNMENT OF MYSORE.

LOCAL SELF-GOVERNMENT DEPARTMENT.

G.O. No. L. 15125-36—I.T.B. 35-51-1, dated 18th March 1952.

Comprehensive Plan.

Constitutes a committee for drawing up a —— for the future development of Bangalore.

ORDER NO. L. 15125-36—I T.B. 35-51-1, DATED BANGALORE, THE 18TH MARCH 1952.

The population of Bangalore increased from 1,61,299 in 1901 to 7,76,170 in 1951. The significant increase of nearly 100 per cent from 4,06,760 to 7,76,170 during the decade 1941-51 was due, for the most part, to the immigration of people from outside the State attracted to the City by prospects of employment during the war time and since. The influx of people still continues and imposes a strain on the housing facilities and public services available in the City. The increase of population has accentuated conditions of over-crowding in the older parts of the City and the Civil Station and has led to over-building in parts of the suburban areas. It has also given rise to a problem of "Squatters" on open spaces belonging to private owners as well as to the Government and the Municipal Corporation.

2. These questions have to be urgently tackled. At the same time, provision must be made for other requirements of a varied character, arising from the establishment or proposed establishment of new industries, the contemplated expansion of education and other social services and the location of certain offices of the Central Government and units of the Defence Services in and near Bangalore. Rapidly increasing motor traffic calls for a re-examination of the existing road system in the City. Under the Five-year Plan, the State has undertaken to provide industrial housing at a cost of Rs. 50 lakhs and the bulk of this sum will naturally have to be devoted to schemes of industrial housing within the limits or in the vicinity of the City.

3. These considerations make it urgently necessary to have a comprehensive general plan of development prepared for the City of Bangalore and some of the adjoining rural areas which may be expected, in course of time, to become parts of Greater Bangalore. For this purpose, it has been decided to appoint a Committee, designated the Bangalore Development Committee, with the undermentioned members :—

(1) The Chairman, Bangalore City Improvement Trust Board.

(2) The Mayor, Bangalore City Corporation.

(3) The Commissioner, Bangalore City Corporation.

(4) The Chief Engineer in Mysore (Roads and Buildings).

(5) The Director of Public Health in Mysore.

(6) A Councillor chosen by the Corporation of the City of Bangalore.*

(7) The Deputy Commissioner, Bangalore District.

(8) Mr. G. H. Krumbiegal.

(9) The Government Architect.

(10) A Member of the Legislative Assembly of Mysore (to be notified later).*

(11) The Ministry of Defence, Government of India, are also being requested to nominate a representative to serve on the Committee.*

Sri N. Madhava Rau, Retired Dewan of Mysore, has agreed to be the Chairman of the Committee. The Engineer Officer, Bangalore City Improvement Trust Board, will be the Secretary of the Committee in addition to his own duties.

4. The terms of reference to the Committee will be :

(1) (*a*) To make an appraisal of the housing conditions in the City ;

(*b*) To examine the housing schemes now in progress and suggest any modifications required therein ; and

---

**Note*.—1. The following persons were subsequently notified by Government as having been selected to serve on the Committee, against the representatives indicated in paragraph 3:—

(i) A Councillor chosen by the Corporation of the City of Bangalore ...	Sriman H. S. Seetharam.
(ii) A Member of the Legislative Assembly ...	Sriman M. Palaniappan.
(iii) Representative nominated by the Ministry of Defence, Government of India ...	Major M. S. Ahluwalia, D.A.Q.M.G., Bangalore Sub Area.

Note.—2. On the suggestion of the committee, Government also appointed the following officers as additional members of the Committee:—

(i) The Census Commissioner in Mysore.

(ii) The Director of Industries and Commerce in Mysore.

(c) To indicate any new schemes of town extension that should be undertaken having regard to foreseeable requirements of the City in the near future;

(2) To suggest suitable location for important public buildings;

(3) To indicate open spaces in the City which should be preserved for use as parks, play-grounds, etc., and fresh open spaces to be created in the interest of public health and convenience;

(4) To indicate areas that should be set apart for the setting of new factories;

(5) To make proposals for the housing of industrial employees;

(6) To examine the adequacy of the existing provision for public services, such as water supply, drainage and sewage disposal, supply of electric power and formulate measures for their expansion, in an orderly and economical manner, so as to keep pace as far as possible with City's growing needs;

(7) To examine the existing road system and available transport facilities and recommend any measures needed to improve them;

(8) To suggest measures for relieving overcrowding in the old areas of the City and Civil Station, for the removal of unauthorised structures on lands belonging to public authorities, for controlling building and for preventing the use of houses and compounds in residential areas for inappropriate purposes, by means of suitable bye-laws;

(9) To assess, as far as possible, the expenditure that would be entailed by, and indicate the legislation, if any, that would be needed for implementing the Committee's proposals; and

(10) In the light of population trends and anticipated requirements to draw up, in broad outline, a plan for the orderly development of greater Bangalore, so that it may serve the Government and local authorities as a guide in dealing with specific projects or questions relating to the City that may come up for consideration from time to time.

5. The expenditure in connection with the work of the Committee will be shared between the Bangalore City Improvement Trust Board and the Corporation of the City of Bangalore in the ratio of 2:1. The Bangalore City Improvement Trust Board will provide in the first instance the staff and office accommodation and equipment required for the work of the Bangalore Development Committee.

6. The Chairman, Bangalore City Improvement Trust Board, will act as Vice-Chairman of the Committee.

7. The Committee may co-opt any Officer of Government or Corporation if it feels it necessary.

8. It is hoped that it may be possible for the Committee to complete its work and submit its final report within one year. Any interim recommendation which may be made by the Committee on matters of urgency will receive the prompt and careful consideration of Government.

K. BALASUBRAMANYAM,

Secretary to Government,
Local Self-Government Department.

To—The Chairman, City Improvement Trust Board, Bangalore.
The Mayor, Corporation of the City of Bangalore.
The Commissioner, Corporation of the City of Bangalore.
The Chief Engineer in Mysore (Roads and Buildings).
The Director of Public Instruction in Mysore, Bangalore.
The Deputy Commissioner, Bangalore District, Bangalore.
The Government Architect and Town Planning Officer in Mysore.
The Secretaries to Government.
The Director of Public Health in Mysore.
The Accountant-General, Mysore.
The Controller, State Accounts Department, Bangalore.
The Other Heads of Departments.

APPENDIX B.

General Principles of Modern Town Planning.

Below is reproduced a note kindly furnished to us by one of the members of the Committee, Sri B. R. Manickam B.E., M.A.S.C.E., M.A.S.P.O., Government Architect and Town Planning Officer, on the principles of modern town planning. The proposals of the Committee are mainly based on a consideration of these principles against the factual background set forth in the preceding chapters.

Town or City Planning today is based on a number of factors other than the mere physical factors as was the practice some decades ago. Even as recently as in the beginning of the 20th century, town plans were prepared exclusively by Architects or landscape architects who focussed all their attention mostly to the alignment of the avenues and streets, the location of squares and piazas and in general to the three dimensional beauty and grandeur of the city or town. They paid very little attention to the more important sociological aspects of the town. No doubt, schools, hospitals and other amenities were provided to serve the town, but their position and location were not usually to the best advantage of the inhabitants. The school might have been located at the end of a beautiful avenue just to achieve the architectural climax but the designer forgot entirely about the school children who had to tread a long way along the avenue full of traffic and finally reach the school after passing through a number of squares and circles.

2. Today, the design of a town or city is approached from a different angle altogether. The sociological and economic considerations are far more important than the physical environments or the alignment of avenues and roads. In the present day planning, more consideration is given to problems such as easy access to place of work (journey to work), the distribution and location of the various social amenities such as schools, hospitals, shopping centres and parks for each neighbourhood so as to be within the easy reach of the people and lastly proper distribution of open spaces for recreational purposes for different age groups.

3. Therefore, while preparing a development plan or a master plan for a new town or for re-development of a town, the town planner has to work in collaboration with the experts in different fields such as agriculture, geology, water-supply, electricity, landscape, industry, population and statistics, education, medicine and public health, traffic, public finance, etc. The basic surveys have to be conducted in all these fields and

the required data have to be collected not only of the present but of the previous years so that proper provisions may be made in the plan to satisfy the needs of the future.

4. In the last few years, Town and Country Planning has been taken as an important step in the National Planning of a country. This is noticeable particularly in Europe and the United States of America, specially after the ravages of the Second World War. In between the two World Wars many towns and cities have grown haphazardly without proper plans. Industries have been established in the cities without any consideration regarding congestion in Housing and Transport and adequacy of the essential services such as Water-supply and Electricity. The influx of the rural population into cities and the consequent growth of the cities into unmanageable sizes have given rise to innumerable problems in the city management.

5. The serious disadvantages that arise on account of haphazard growth of towns without proper comprehensive master plans are obvious. Firstly, there is housing shortage which is the result of the rapid increase in population. Secondly, there is shortage of schools, hospitals and other essential social amenities. Thirdly, the rapid development of shopping and commercial centres to serve the growing population along the main arteries in the city produce congestion in traffic and create bad slums. Finally, it results in lack of open spaces, inefficient transport, shortage of water-supply, electricity and other essential needs. Living becomes costly due to the demand being far greater than supply.

6. Consequently, most of the towns and cities in the West have taken very seriously the subject of City Planning and have been spending considerable amount of money towards re-planning them in order to offset the many disadvantages enumerated above. These plans are prepared by special agencies employing experts in the field. In the United States of America, they are prepared by Planning Commissions, each Commission having its own Bye-laws and Acts suited to the locality. In England, a special Ministry for Planning is set up with numerous country planning councils and the work is being done on an extensive scale throughout the country. An Act, entitled "Town and Country Planning Act of 1947", superseding several previous Acts, is now in force for the entire country and the planning is being done according to this Act. One important aspect of such Planning is the methodical development of the town or city considering the different aspects, such as, growth of population, future growth of industries and their location, schools, hospitals, shopping centres, open spaces and such other social amenities which are essential for the town or city.

7. As explained already, the Town Planner does not think of a town merely from the aesthetic point of view but

thinks of it as a living organism. The proposals for the re-development of the existing town and its expansion should take into account the social habits and the various professions of the people inhabiting it. It is only after Patrick Geddes and contemporary Lewis Mumford brought out into light the new and true aspect of Town Planning that the Town Planners began to design towns in the right way. For instance, when one wants to clear slums and open out congested areas the first and foremost idea that strikes him is to put a straight and wide road with a beautiful avenue, without paying any regard to existing pattern. Patrick Geddes pointed out that opening out congested areas by creating lung spaces by pulling down a few dilapidated structures, widening the existing lanes in almost the same pattern in which it exists, introduction of parks and open spaces required for the locality and providing the required amenities by grouping the houses into ne-ighbourhoods, would form an appropriate and useful re-development plan rather than laying out indiscriminately a number of longitudinal and cross roads.

8. The Town Planner of today pools together the statistics and requirements given by the experts in different fields *viz.*, Agriculture, Landscape, Architecture, Population, Traffic, Water-supply, Electricity, Public Health, Education and Mass Psychology. He forms a team with these experts tries to collaborate their ideas into a combined project in th form of a *Master Plan*.

9. "Neighbourhoods" or what we call as "Extensions" is the watch-word in planning today. Each neighbourhood is made, as far as possible, a self-contained unit with its own school, hospital, shopping centre, park and a civic centre. The aim of the planner is to provide the maximum possible comforts to the inhabitants in the neighbourhood, the principles of design being—

(i) that the working member of the family lives close to his work preferably within walking distance;

(ii) that the house-wife need walk only a short distance to the shopping centre;

(iii) that the children may approach the school without fear of traffic risks;

(iv) that the people of the neighbourhood are close to a park or play-ground;

(v) that they have facilities for quick transport to the administrative area.

10. The above considerations are only a few of the numerous other considerations that are peculiar to each locality. In an industrial area, for instance, it is necessary to separate the industry from housing area by green belts. It is also necessary

to locate the housing area in the zone free from smoke and odours emanating from the factory. In the green belt perhaps schools and play-grounds may be located.

11. The streets and roads are aligned with wide belts of open space in the direction of monsoons. This induces the monsoonic wind to clean up the area by carrying away from the houses the bacteria and dust contained in the air. The houses may be so aligned as to avoid the western and summer sun but to invite into the living rooms the winter and morning sun. At the same time, the monsoonic wind is to be avoided while the draft is created in the direction of summer breeze. Introduction of blind approach roads to residential areas—as "Cul-de-sacs"—prevents the through traffic from entering the residential areas and incidentally reduces paved surface and consequently maintenance cost. This also reduces accidents.

12. The old method of town planning consisted of mere grid-iron pattern; that is, to lay out a number of longitudinal highways and cross streets. Some fanciful town planners thought of a radial system concentrating traffic congestion at the centre. Both in the grid-iron pattern as well as the radial pattern, importance is given to the centre and the city grows circumferentially putting greater and greater strain on the centre. Some of the western countries are suffering from this defect very badly and the planners of today are trying their best to disperse the population—

(i) by proper distribution of industries;
(ii) by creating satellite towns all round with green belts—providing conveniences of traffic between the main town and the satellite towns; and
(iii) by restricting the number of storeys in buildings.

13. The most effective method to avoid the growth of a town to an unmanageable size is to follow the lineal system. This system consists of—

(i) providing one or two main arterial highways with rail road (and canal where possible) running parallel with up-to-date traffic controls for high speed traffic;

(ii) developing on this highway small and big townships as the situation demands locating the industries and corresponding residential areas with "Cul-de-sac" system of road work;

(iii) locating at convenient distances the administrative head-quarters which can be reached by fast transport along this main highway. It is known that the inhabitant visits the administrative centre only once in a way;

(iv) avoiding the building up of the space between the townships by proper regulation. This is naturally avoided by properly balancing the residential area to the needs of the industries located in each township;

(v) zoning the township for various uses *e.g.*, industries, commercial, residential (of different densities) and open spaces.

14. Control of density of population is a great factor in the preparation of a Master Plan for any town. So far as the new extensions or the formation of new townships are concerned, this is an easy matter. Within the city limits a gross density of 50 per acre is allowable. This means that the residential area which is usually 50 per cent of the gross area will have a net density of 100 per acre. In the Bombay plan also they have allowed a gross density of 50 per acre.

15. It has now been accepted by all, that while planning, big and small sites have to be mixed up together to make the entire population feel a state of oneness unlike what it was before when the rich, the poor and the labour used to live separately. The following percentage of the various sizes of sites in a locality has been found to be quite suitable. The City Improvement Trust Board, Bangalore, has, in the new extensions formed recently, followed more or less the following group :—

Size of site.		*Number.*	*Percentage.*
100′×150′	...	3	20 per cent
80′×120′	...	4	
60′× 90′	...	6	
50′× 80′	...	7	
40′× 60′	...	40	65 do
30′× 30′	...	25	
20′× 30′	...	15	15 do
Total	...	100	

Taking five persons per family and assuming one family lives in each site, the population in this unit works out to 500. By proper planning it is possible to get about 10 sites per acre, and for 100 sites we require 10 acres. In other words, the population would be 50 per acre of laid out area. If an equal area of 10 acres is left as open space, the population of gross area would work out to 25 per acre in the new extensions.

16 The principles of planning mentioned above are easily applied to the formation of new townships or neighbourhoods. The principles involved in redeveloping the existing neighbourhoods which are suffering from one or more of the defects

mentioned above, are slightly different and involve financial implications. The problem becomes difficult on account of the following reasons :—

(1) the cost of acquisition is usually high in congested areas ;

(2) it is rather difficult to modify the road system which has been set from a long time ;

(3) the displaced persons are to be suitably resettled as otherwise they will create new slums in adjoining areas.

The possible solution within the means of a Corporation or a Municipality for re-development of congested areas is to apply the principle of "Conservative Surgery" as Patrick Geddes recommends.

17. As a first measure of improvement of congested localities of the city one has to lay out a number of extensions properly designed incorporating the principles enumerated above. Such extensions provide venue for those who could afford to shift from the over-crowded localities. The second step is to take severe action in demolishing insanitary and over-crowded houses provided for under the Act. The open areas thus arising out of the demolition will have to be kept open or suitably built upon with sufficient set backs. The third step is to lay out a rule for a set back on each road when licenses are issued for re-building so that the building line is kept up. The fourth step is to prevent sub-division of sites, which can be done by prescribing a certain minimum width for each site facing a particular road as was prevalent in the Civil and Military Station formerly. The fifth step is to restrict the built-up area in each site which effectively reduces the number of families living in each site. By these methods it is possible to bring down the population per acre in crowded localities in course of time without incurring heavy expenditure by way of acquisition involving heavy cost. A master plan for redevelopment of existing neighbourhoods, therefore, depends largely on the existing pattern. A thorough study of the area and population has to be made by carrying out a survey to get the following details :—

(1) Houses in the neighbourhood indicating the nature of construction and the age of the structure, classified as follows :—

(*a*) *pucka* construction with good walls and roof within ten years of age ;

(*b*) second class construction with walls and roof in fair condition within 20 years of age ;

(*c*) third class—say brick in mud walls tiled roof 30 to 40 years old—developed cracks ;

(*d*) dilapidated—more than 40 years old—no immediate danger of collapsing;

(*e*) dilapidated—dangerous and unhealthy to live;

(*f*) temporary sheds.

A map showing the above houses in different colours has to be made.

(2) Population of the neighbourhood :—The intensity and number of persons in each house have to be determined and a population map prepared.

(3) Sanitary conditions:—A map showing the sanitary conditions prevailing in the locality has to be made;

(4) Open spaces:—A map showing the existing open space has to be made.

With the above data, proposals have to be worked out for—

(1) creating open places by pulling down first the dilapidated structures and over-crowded houses;

(2) locating the buildings for civic amenities in such open areas;

(3) providing parks and recreation areas in these open spaces;

(4) providing transition houses for those dishoused from acquisition of such houses;

(5) improving the road and communication system without involving acquisition of costly buildings;

(6) improving the drainage and sanitary arrangements.

By adopting the above principles we can cut down cost of acquisition of costly properties in re-developing the existing congested neighbourhoods. In other words, the usual practice of simply opening out main and cross roads, providing conservancies without any regard to the existing pattern of the neighbourhood involves heavy expenditure and dislocates the life of the inhabitants living in the area. The re-development of congested areas which are quite numerous in Bangalore require to be dealt with each in its own way depending upon the local conditions. The most important object is to bring down the intensity of population without incurring heavy cost by way of acquisition of costly buildings.

APPENDIX C.

Relation of area to population—Standards of Density.

Bombay Master Plan.—As regards the normal limits of density that may be deemed to satisfy the requirements of public convenience, sanitation and the health development of the City, the authors of the Master Plan for Bombay have adopted an average density of 32,000 persons per sq. mile, or 50 persons (about 12-14 families) per acre of gross residential area, as suitable, on the basis of the undermentioned calculations.

" Several layouts were prepared on the assumption that the houses would be occupied by medium income group families in two storey units. It was found that, with adequate open spaces, 22 families could be well accommodated per acre (inclusive of local roads) or about 1,000 persons per 10 net acres. To this must be added the following :—

Local recreation	...	4 acres per 1,000
Shopping Centres	...	1·75 do
Educational and Public Bldgs.	...	2·75 do
Waste	...	1·5 do

This gives a net land allowance of 20 acres per 1,000 persons or 32,000 persons per sq.mile or about 12 to 14 families per gross acres of residential area. "

They have accordingly proposed densities of .—

(i) Approximately 50 per acre in residential areas of Greater Bombay, including local shopping centres, schools, local parks and play-grounds and local roads ;

(ii) Approximately 175 per acre in residential areas in Bombay Island in the first few projects, then going down to about 140 ; this density not including park areas which are created as each project is built.

Views of the Planning Commission.—In the report of the Study Circle on Industrial Housing organised by the Housing Section of the National Planning Commission " a maximum density of 20 sites per acre, or if the average size of a family is assumed as 5, then 100 persons per acre " is recommended, including primary and secondary open spaces, but not tertiary open space.

Note.—Primary open space Front door open space which includes all open spaces abutting the site like streets, side walks and other open spaces in front of the house. (Used by children under 8 years, and by adults for sitting out in the evenings).

Secondary Open space.—Open space within the community but not abutting the site and still within close proximity (Provide play space for children from 3 to 10 years close to their houses).

Tertiary open space.—Public parks, play-grounds serving the whole community. (Is a social amenity and forms part of the community living space). Standard of Tertiary open space recommended is 7 acres per 1,000 population :—

3 acres for urban parks,
2 acres for small parks for children,
2 acres for playing fields.

Greater London Plan.—In planning Greater London, Sir Patric Abercroble, the eminent Architect and Town Planner has suggested the adoption of the following standards. (Chapter 8 of the Greater London Plan, 1944, page 114).

Standard for a residential neighbourhood of 10,000 population.

Location of neighbourhood	Net residential density	Land for			Total land
		Housing only	Open spaces	Other open spaces	
		Acres	Acres	Acres	Acres
Inner Urban (1) ...	100	100	40	40	180
Do (2) ...	100	100	70	40	210
Do (3) ...	75	133	70	50	253
Suburban (1) ...	75	133	70	50	253
Do (2) ...	50	200	70	60	390
Do (3) ...	50	200	...	...	...
Green Belt (1) ...	50	200	100	60	360
Do (2) ...	30	333	100	70	503
Outer Country (1) ...	50	200	100	60	360
Do (2) ...	30	333	100	70	503

Though the above standards are very reasonable it may be difficult to attain these in our city. It is, therefore, proposed to adopt the following standards :—

	Net residential density	Land for housing only	Land for open spaces	Land for other purposes	Total land
		Acres	Acres	Acres	Acres
1. Central areas like Chickpet, Avenue Road, which require replanning.	200	50	10	10	70 (giving a gross density of 148 per acre).
2. Other residential Suburb areas. (1)	150	57	20	20	107 (giving a gross density of 94 per acre).
3. (2)	100	100	30	30	160 (giving a gross density of 63 per acre).
4. Outer-country ...	50	200	50	50	300 (giving a gross density of 33 per acre).

Note.— Open spaces include children's play-grounds, local parks, etc., and land for other purposes include primary schools, shops, offices community buildings, etc.

Taking the City as a whole it is proposed to adopt the following as an average for the whole area, for each unit of 10,000 population.

Net residential density	Land for housing only	Land for public open space for 10 acres per 1000	Agricultural land for garden and forests at 15 acres per 1000
75	Acres 133	100	150

Land for schools, offices, industries, Government buildings, etc., at 5 acres per 1000	Total land for 10,000 population	Gross density
Acres 50	433	23 or say 25 per acre

If a gross density of 25 per acre is adopted the area needed to accommodate 2 million population is 80,000 acres or 125 sq. miles. Areas that could be included in the Greater Bangalore area is marked on the attached plan.

APPENDIX D

List of Bore-wells sunk in Bangalore Corporation Limits.

Sl. No.	Place or name of party	No. of bore-wells	Depth in feet	Yield in G.P.H.
1	Mavalli	1	152′—6″	250
2	C. I. Workshop	1	141′	420
3	New Mental Hospital	1	210′	360
4	Lalbagh	1	...	100
5	Central Jail, Bangalore ...	1	60′—6″	1,500
6	Meternity Hospital	1	18′	500
7	Tata Institute	11	121′	534
			133′	480
			137′	200
			187′	60
			131′	240
			166′	220
			150′	320
			148′	220
			128′	30
			124′	780
			125′	300
8	Windsor Lodge, High Grounds ...	1	157′	160
9	Mysore Glass and Enamel Works ...	2	116′	300
			91′	180
10	Maharaja Mills (Mysore Spinning and Manufacturing Co., Ltd., Malleswaram).	4	200′	1,200
			150′	900
			335′	600
			160′	nil
11	Mysore Lamp Works	1	200′	700
12	Kirloskar Electric Factory ...	1	155′	200
13	B. G. Appadore Modaliar's Bungalow, Basavangudi.	1	138′	125
14	M. Venkatanarasappa's Bungalow, Basavangudi.	1	111′	500
15	Ms. Ganesh Iyers' Bungalow, Basavangudi.	1	101′	1,400
16	M. N. Krishna Rao's Bungalow ...	2	142′	960
			100′—6″	1,800
17	S. P. Rajagopalachari's Bungalow, Basavangudi.	1	62′	800
18	N. S. Subba Rao's Bungalow, Basavangudi.	1	100′	800
19	Sri J. V. Karve, Shankarapuram extension.	1	197′	1,800

APPENDIX D—*concld.*

Sl. No.	Place or name if party	No. of bore-wells	Depth in feet	Yield in G.P.H.
20	Sri C. M. Garudachar's Bungalow, Basavangudi.	1	172′	700
21	Sri V. R. Cowsik, Basavangudi ...	2	15′—6″	240
			188′—6″	500
22	Imperial Diary Farm ...	1	150′	700
23	Sri M. Venkatasubba Rao, Viswes-warapuram extension.	1	111′	50
24	St. Mary's Convent, Chamarajpet ...	1	130′	350
25	Rubin Mosses Bungalow, High-grounds.	2	178′	240
			110′	nil
26	Beaulien, Seshadri Road ...	1	300′	650
27	Sri K. Narayan, Gandhinagar extension.	1	50′	800
28	Sri T. Govinda Rao, Seshadripuram.	1	80′	600
29	S. Sajjan Rao's Bungalow ...	1	225′	350
30	Sri N. Madhava Rao's Bungalow ...	1	100′	1,200
31	Belmont House, High-grounds ...	1	39′	250
32	Melville House, High-grounds ...	1	38′—6″	1,320
33	Garudachar's Gardens ...	1	200′	400
34	Subbiah's Garden ...	1	200′	400
35	Lalbagh Oblappa's Gardens ...	1	225′	360
36	Tobaco Manufacturers Ltd., Frazer Town, Bangalore.	2	208′	800
			181′	800

APPENDIX E

Statement showing the Particulars of the Various Slum Areas within the Limits of the Corporation of the City of Bangalore.

Serial No.	Division		Name of the slum area	Number of huts	Population
	No.	Name			
			A. CITY AREA.		
1	1	Malleswaram West	Pit Colony	155	847
2		Do ...	International Co-operative Society Yard.	64	319
3	3	Srirampuram ..	Muneswara Temple huts near over-bridge	95	410
4		Do ...	Kurubara Gudigalu (Marathi Extension).	64	272
5	4	Labour Colony ...	Nagendra Colony near Hanumanthapuram.	53	294
6		Do ...	Harijan Sevak Sangha huts ...	48	219
7		Do ...	Raja Mill huts (opposite 6th cross Road, Sriramapuram).	122	620
8		Do ..	Ghouse Saheb huts, Hanumanthapuram.	120	606
9	5	Maharaja Mills	Sweeper colony huts, near Risaldar Street.	157	822
10		Do ..	Huts behind Raja Mills ...	49	304
11		Do ...	Huts in Swathanthrapalya ...	1,193	6,554
12		Do ...	Muddiah garden	67	404
13		Do ...	Raja Mill huts near Mohamadan Block, Malleswaram,	208	1,234
14	6	Seshadripuram ...	Huts in Seshadripuram ...	198	581
15	8	Kempapuragrahar...	Royapuram Sweepers huts ...	392	2,083
16	12	Gandhinagar ...	Huts in Syed Mustafa and C.R. Nagappa's land, Subedar Chatram Road.	59	301
17		Do ...	Thippasetty mut huts ...	104	509
18		Do ...	Kenchappa Garden	395	2,255
19	15	Super Talkies ...	Ittige Anjanappa Garden ...	480	2,757
20		Do ...	Timber Yard huts near Super Talkies and in Cart stand in Jali Mohalla.	316	1,652
21		Do ...	Huts in Veerabasiah land in Mysore Road.	85	532
22	16	Chamarajpet West...	Tiled huts behind T.R. Mills ...	17	77
23	16	Chamarajpet East...	Baba huts in Mysore Road ...	307	2,448
24		Do ...	Tiled huts in front of Sharada Street Samaj, I Road, Chamarajpet.	64	505
25	18	Kalasipalyam	Huts around Mariswamy Mutt. ...	20	163
26		Do ...	Marappa Garden	8	35
27		Do ...	Rajamma Garden	61	257
28		Do ..	Rajagopal Garden		
29		Do ...	Sultan Mohiden Garden ...	36	224
30		Do ...	Hamidkhan Garden ...	38	260
31		Do ...	Appajappa Garden, Mavalli Tank Bed.	79	161
32		Do ...	Shamberpalya huts near Basappa Circle.	64	235
33	19	Gavipur Guttahalli	Sheds in Sanyasi Kumti ...	57	279
34		Do ...	Huts behind Guttahalli and Chatram Block (South).	254	1,271
35		Do	Chatram Block (North) ...	106	716
36	21	Visweswarapuram...	Huts near Vokkaligar Sangha ...	70	386
37		Do ...	Shambupalyam huts near Asaktha Poshaka Sabha.	40	167
38	23	Basavangudi ...	Kanakanpalya huts	438	2,118
39		Do ...	Huts in Health Camp near Vijaya College.	59	298
40		Do ...	Kumbaragundi Sheds ...	60	343
41		Do ...	Sakamma Gardens near Yediyur Terminus.	94	558

APPENDIX E—*contd.*

Serial No.	Division No.	Division Name	Name of the slum area	Number of huts	Population
42	24	Mavalli ...	Huts near Bada Makhan, Lalbagh Road.	75	437
		Do ..	Huts near Gutte Anjaneya Temple, Hosur Road and near Mental Hospital.	47	259
43	25	Town Hall ...	Huts in New Kalasipalyam layout	711	3,813
44		Do ...	Muniswamappa Garden opposite to Mariswamy Mutt.	130	627
45		Do ...	Gurappa Garden behind Bharath Talkies).	313	1,435
46		Do ...	Huts behind Vyayamashala ...	91	437
47		Do ...	Narayanaswamy Garden opposite Shivaji Talkies.	122	682
48		Do ...	Khadar Sheriff Garden, behind Kalami buildings, Lalbagh Road.	280	1,618
49	26	Do ...	Huts near Municipal Stores and near Main Drain,	70	372
50		Do ...	Huts near Smithy Block and slaughter house.	102	517
51		Do ...	De-Souza Garden opposite to Mission Compound.	177	998
52	29	Cubbonpet ...	Pillappa Garden	107	518
53		Do ...	Sampige Halli	8	25
54		Do	Papanna Garden	99	480
55		Do ...	Sweepers' huts to east of Shama Rao's Compound and Thanappa Garden.	61	303
56	29	Do ...	Ramiah Garden and huts behind Monnappa Mutt.	50	207
57		Do ...	Huts opposite to Doddi Appiah's choultry.	242	285
58		Do ...	Huts near Munivenkatappa Gardens behind Corporation Swimming Pool.	63	1,029
59	3-	Palace-Guttahalli...	Huts near Pipe line East ...	98	495
60		Do ...	T. S. Block near Muneswara temple.	491	2,297
61		Do ...	T. S. Block huts to west of Venkatarangapuram:	181	966
62		Do ...	Huts in Jabbar, Kondappa and Chickanna Blocks to west of Channakrishnappa St., Palace Guttahalli.	194	846
63	32	Benson Town Division (City area—Munireddipalyam).	Adikarnataka Block. Munireddypalyam.	152	864
			Total ...	10,124	53,609

B. CIVIL STATION AREA.

64	32	Benson Town ...	P. Krishnappa's Garden, Marappa Thota.	61	387
65		Do ...	Lakshmanna's and Gowramma's land.	35	208
66		Do ...	R. Venkatappa's Garden ...		
67	35	Cox Town ...	Puttarangappa's Garden, Doddigunta.	49	195
68		Do ...	Appiah Gowder's Garden Doddigunta.		
69		Do ...	Thayamma's Garden, Doddigunta.	46	274
70		Do ...	Madigapalyam, Jeevanahalli ...		
71		Do ...	Achappa Garden, Jeevanahalli ...	28	138
72		Do ...	Muninarayanappa's Garden, Jeevanahalli.		

APPENDIX E—*concld.*

Serial No.	Division No.	Division Name	Name of the slum area	Number of huts	Population
73	36	Murphy Town ...	Munivenkatappa Garden, Murphy Town.	172	1,510
		Do ...	Munivenkatappa Garden, Ulsoor.		
74		Do ...	Binnamangalam	21	134
75		Do ..	Kadirayannapalyam	4	16
76		Do ...	Narayanappa Garden C. No. 2, St.	20	66
77		Do ...	Do Kolar Road.	51	379
78	37	Joughpalyam ...	Papamma Garden	3	11
79		Do ...	Muniappa Garden	22	116
80		Do ...	Kullappa Garden (son of Papanna).		
81		Do ...	Venkataswamappa Garden ...		
82		Do ...	Anniah Reddy Garden, Domlur...		
83		Do ...	Thimmiah Reddy Garden ...	6	15
84		Do ...	Muniswamy Garden, Dookanahalli.	21	103
85			Appireddypalya	5	64
86	41	Bamboo-Bazaar ...	Mootoocherry	43	115
87	45	Broadway ...	Sultanaji Gunta	37	191
88	46	Tasker Town ...	Miller Tank Area (including City area also).	160	942
89	49	Richmond Town Division.	Bheemanna Garden	52	231
	50	Austin Town Division.	Puduparachery Garden ...		
90	50	Austin Town ...	Muthamma Garden	5	20
91		Do ...	Katappa Colony	27	90
92		Do ...	Venkataramanareddy Garden ...	21	64
			Total ...	899	5,262
			City Area ...	10,124	53,609
			Grand Total ...	10,923	58,871

WD 4510—GPB—300—22-2-54

REPORT OF THE BANGALORE DEVELOPMENT COMMITTEE, 1952-53.

(Summary and Recommendations)

The draft report consists of 18 Chapters under the following headings :

I. Introductory.

II. Brief history of Bangalore and its Municipal Organisation.

III. Growth of Bangalore and Distribution of population.

IV. Housing conditions.

V. Location of Industries.

VI. A. Housing Development (Industrial).
B. Housing Development (General).

VII. Slums.

VIII. Improvement and Maintenance of Residential areas.

IX. Educational Institutions.

X. Administrative and Commercial Zones.

XI. Open spaces and Recreational facilities.

XII. Military lands.

XIII. Communications and Transport Facilities.

XIV. Water Supply.

XV. Underground drainage and sewage disposal.

XVI. Plan of Greater Bangalore in outline.

XVII. Planning Legislation.

XVIII. Concluding observations.

CHAPTER I refers to the appointment of this Committee, its personnel and terms of reference, meetings of the Committee and Sub-Committees.

In CHAPTER II, a short account is given of the history of Bangalore and its Municipal Organisation referring to the following important events in that connection :—

(1) The Fort and Pettah forming the nucleus of the City were laid out by Kempegowda, Pallegar of Magadi in 1537. While signs of flourishing industrial and business activity were noticeable from very early times, the size of the town continued to be relatively small till end of 18th century.

(2) The Civil Station had its origin in 1807, when, at the request of the British Military authorities, His Highness the Maharaja gave permission for the British Troops (which had to be transferred from Seringapatam on grounds of health) to occupy some lands near Ulsoor and build barracks and other military buildings. Gradually, a civil population also settled down in the vicinity.

(3) Early in the thirtees of the 19th century, following the appointment of a British Commission, Bangalore became the administrative headquarters of the State—a circumstance which has influenced its growth and development ever since.

(4) The Municipality dates from 1862. The Cantonment and the Civil Station were constituted into one Municipal area under the name of " Cantonment Municipality ", and a separate Municipality was set up for the Pettah or City proper. The Municipal Regulation of 1871, providing among other things a number of Municipal Commissioners, came into force on 1st April 1871.

After rendition in 1881, the Municipality of the Cantonment was transferred to the jurisdic-

tion of the Resident, and the City Municipality was administered separately by the State authorities.

On retrocession of the areas of the Civil and Military Station to the State in 1947, the Civil Station Municipality also came under the jurisdiction of the State Government. In 1949, the two Municipalities were amalgamated into one statutory body by the City of Bangalore Municipal Corporation Act.

(5) The Government of Mysore have always taken special interest in the improvement of the City and contributed liberally towards it from State Funds. Special Committees were being appointed by Government, from time to time, to carry out improvement schemes. In 1945, a statutory body was constituted by Act V of 1945, with the designation "Board of Trustees for the improvement of the City of Bangalore," and after the amalgamation of the Civil Station Municipality with the City Municipality in 1949, the jurisdiction of the Trust Board was extended to include the area of the Civil Station Municipality as also all areas within a distance of three miles from the Municipal limits.

(6) After the out-break of plague in 1898, Basavangudi and Malleswaram were laid out to relieve congestion and improve sanitary conditions in the City. The policy of adding further extensions, from time to time, has since been pursued systematically and the work is receiving the special attention of the City Improvement Trust Board.

(7) Filtered Water Supply both for the City as well as for the Civil and Military Station was arranged from the Hessarghatta tank in 1896. This supply was considerably augmented in 1933 by the construction of a larger reservoir across the Arkavathi at Thippagondanahalli.

(8) Bangalore was first linked by a broad-gauge railway to Madras in 1864; metre gauge railway connection was established with Mysore in 1882, with Harihar in 1889 and Guntakal in 1893.

(9) In 1905, Bangalore was supplied with electric power from Sivasamudram for lighting and industrial purposes.

(10) A comprehensive scheme for underground drainage of the City was sanctioned in 1941 and has for the most part been carried out in subsequent years.

CHAPTERS III and IV give statistics and other information showing :—

(1) that the population of the city (including Civil Station) has increased 5 times during 1901-51.

(2) that the increase has been (*a*) more rapid in the City than in the Civil Station area and (*b*) proportionately far greater during 1941-51 than in any previous decade;

(3) that without taking into consideration the immigration of people from rural areas and from places outside the State, the population within the present Corporation limits might increase to 1 million in about 15 years and 2 millions within 80 years. If Bangalore becomes the capital of the new State of United Karnataka and the present tendency to concentrate industries and administrative activities in this area is unchecked, the 2 million mark may be reached within 30 or 40 years;

(4) Although several City Extensions have been laid out from time to time and some amount of house building has been fostered by Public authorities and Co-operative Societies, the sum total of the results of such organised effort is not significant;

(5) That 40 per cent of the present population of the City live in congested areas where the density is higher than 100 persons per acre ; and

(6) that some of the City Extensions are getting congested.

The Chapters which follow (excepting Chapter XVI) contain, under the respective headings, a brief appraisal of the present situation and recommendations of the action to be taken. These recommendations are reproduced below :

CHAPTER V.

Location of Industries.

1. Concentration of industrial establishments in selected areas, instead of allowing them to spring up in a haphazard manner in residential zones and elsewhere, is a recognised need.

2. The new Industrial Suburb (Rajaji Nagar) that is being developed by the Trust Bord near the old industrial area should be more fully utilised. All new industrial development should be guided into this suburb. This will be greatly facilitated when water supply is provided for the area. Inducements should be offered to owners of existing industrial units in the City to locate them in the suburb, and a lead may be given by Government by shifting here the Soap Factory and the Central Industrial Workshop from the administrative area near Cubbon Park where they are entirely out of place and cannot be suitably expanded.

3. The natural valley between the new suburb and the old industrial area should be preserved as an open space.

4. In future, no permission should be given for industrial concerns to be started or materially expanded in the residential zones, the only exception being small concerns catering to the immediate needs of the local community, such as flour mills, laundries, workshops for repair and servicing of motor vehicles.

5. Policy of dispersal of industries (already approved should be consistently followed and wherever possible new industries should be diverted to district headquarters and other towns.

6. The Kolar Gold Fields offers great scope for industrial development with abundant supply of electric power and water, railway transport facilities, moderate land values, etc.

CHAPTER VI.

A. Housing Development (Industrial).

1. The jurisdictions and duties of the several agencies, *e.g.*, the Trust Board, the Municipal Corporation and the Mysore Labour Housing Corporation, acting in the sphere of town planning and house building, have to be clearly defined so as to avoid over-lapping and confusion in actual working.

2. Some difficulties are also experienced in fitting in the provisions of the Mysore Labour Housing Act with those of the Central Government's Industrial Housing Scheme. The Act should be suitably revised so as to enable the Mysore Labour Housing Corporation to administer funds provided by the Central Government also and carry out housing schemes according to a co-ordinated programme.

3. Some of the largest factories are owned by the Central Government of India or State Government. It is natural to expect, in a welfare State, that, while enforcing the obligation of private employers to contribute to the housing of labour, these Governments would set an example to private employers by providing housing for their own industrial employees.

4. The Indian Telephone Industries and the Hindustan Aircraft, Ltd., should arrange to expedite their schemes of housing by drawing up proper programmes and providing adequate finance so that the bulk of labour might be properly housed within, say, the next five years.

5. The Mysore Government also has to take early action in regard to the housing of the employees of the

Government Electric Factory and the Government Porcelain Factory, which employ fairly large labour forces and the further expansion of which seems to be contemplated.

6. As for the housing of the employees of private industrial establishments, it is hoped the new Mysore Labour Housing Corporation will be able to evolve suitable schemes as soon as it has got into its stride.

7. If any of the large industrial employers, (*e.g.*, the Binny Mills, the Maharaja Mills, the Suryodaya Mills) prefer to avail themselves of the concessions offered by the Government of India Industrial Housing Subsidy Scheme (in respect of Housing Schemes undertaken by private employers) and carry out their own housing schemes, they should be afforded every encouragement to do so.

8. It is expected that early steps will be taken to develop industrial housing in the undermentioned places :

(i) Rajajinagar (North),
(ii) Rajajinagar (South),
(iii) For the Hindustan Aircraft Factory,
(iv) For the Indian Telephone Industries,
(v) Near Yeswanthpur, for the Suryodaya Mills, and other concerns in that neighbourhood.
(vi) Near Jalahalli.

9. It is not desirable to segregate industrial workers in separate and exclusive colonies. They should be housed in small neighbourhoods or townships, where all civic amenities are provided and a part of accommodation is made available to other classes of persons. This will afford the workers better opportunities for cultural growth and promote among them a healthy civic consciousness free from class bias. These considerations should be kept in view in respect of all new industrial housing schemes, whether undertaken by private employers or the Labour Housing Corporation.

CHAPTER VI.

B. Housing Development (General).

Apart from the needs of industrial workers, it is calculated that the general housing shortage would be of

the order of about 20,000. The problem involved is not one of merely making up a numerical deficiency, but of arranging for the housing to be provided on a planned basis in suitable localities with all necessary conveniences.

2. There are about 2,000 vacant sites available for building houses in the City and Extensions. The bulk of the housing requirements must therefore be met by laying out new extensions. These extensions should not be regarded merely as dormitories for people working in the City, but as units of community life providing a sufficient number of shopping premises, schools, playgrounds, etc., and they should be physically separate from each other and from the built up area in the City. In the case of industrial workers, proximity to place of work is a very important consideration.

The Jayanagar Extension should be rapidly developed by providing water supply and other conveniences and some of the Extension projects prepared by the Trust Board should be pursued.

3. The undermentioned schemes, though they do not in all respects satisfy the criteria of neighbourhood planning, may still be carried out as they are mainly intended to improve slum conditions—on the principle of tolerating the lesser of two evils :

1. Lakshminarayanapuram, Ramachandrapuram and Maruthi Extension.
2. Yediyur-Nagasandra layout.
3. Layout of Anjanappa Garden.
4. Vasanthanagar Layout.
5. Doddabylkhana Extension.
6. Layout of the area behind Water Supply Division.

4. The undermentioned schemes may be carried out, subject to some modifications, so as to provide more open space :

1. Ramakrishna Mutt Extension.
2. Sampigehalli Tank Layout.
3. Bheemanna Gardens.
4. Nandidrug Road Layout.
5. Layout North of Mission Road.

5. The following proposed schemes may be dropped and the areas preserved as open spaces :

1. Area opposite to Sivaji Talkies.
2. Area between Lalbagh Road, Hosur Road and Monkey Thope Road.
3. Tank bed in Goripalya.

6. If further areas are required for residential extensions they may be developed on the south-east of the City on either side of Hosur Road.

7. The most effective way of promoting general housing is by making developed house sites available for sale or lease to the public as and when needed. The provision of new houses must, by and large, be inevitably left for the present to private effort. Assistance should be given to private builders on the following lines recommended by the National Planning Commission :

1. Simplification of procedure regarding land acquisition in favour of Co-operative Housing Societies and Housing Corporations.
2. Removal of difficulties in the way of getting controlled materials.
3. Provision of finance on easy terms for house-building to individuals and societies.
4. Provision of adequate amenities and services.
5. Exemption from stamp duty on purchase of land for low income group housing.
6. Exemption from General Municipal Tax and Urban immovable property tax for a fixed number of years on transactions for low income group housing.
7. Making available model plans, and simplification of procedure for giving sanction to the building of such houses by local bodies.
8. Provision of free advice in regard to suitable designs and building materials, and technical advice at a nominal charge.

8. The proposal of the Mysore Chamber of Commerce that a big Housing Corporation be set up, with power to take loans from Government or issue debentures when necessary, and that the same be actively supported by Government deserves earnest consideration.

CHAPTER VII.

Slums.

It is found that there are 92 slum areas containing about 10,900 huts or ill-built houses, with a population of 58,870. Powers even under existing law to check this evil, though there may be some ambiguity or loophole here and there, are not effectively enforced. Efforts have to be made on a sufficiently large scale and with sustained energy to deal with the problem.

2. The recommendations recently made by another Committee appointed by Government to deal with the question of checking unauthorised constructions may be given effect to, with a few modifications suggested.

3. The terms 'Layouts" and "Extensions" should be clearly defined, and the power to sanction private layouts or extensions should be vested in the same authority as is authorised to grant building licenses in the area. In the Corporation limits, the Corporation may be empowered to sanction such layouts and in the Trust Board area outside the Corporation limits, the Trust Board may be given power to grant building licenses also, the Village Panchayets and District Boards Act being suitably amended.

4. As regards revenue lands in the area, the Deputy Commissioner should be required to reject any application for conversion of land to non-agricultural purposes unless accompanied by a no-objection certificate from the Corporation Commissioner or Chairman of the Trust Board, as the case may be.

5. Effective arrangements must be made for prompt reporting of cases of infringement of building laws, by giving small allowances to Village Officers for doing this work and also sanctioning to the Trust Board a supervisory staff of a few special Revenue Inspectors. The Corporation also should have a similar vigilance staff.

6. The question of incorporating in the Bangalore City Corporation Act provisions similar to those contained

in the Madras City Municipal Act (Sections 257-A to 257-BB) for the improvement of cheris or hutting grounds, requires consideration.

7. Improvement or clearance of slums should be given high priority in any organised effort for improving urban housing. In many cases it may not be necessary to demolish huts and other buildings in slum areas and shift the people to other localities. It may be sufficient to realign or widen some of the streets and remove only those buildings which project into the reformed streets or which may be otherwise objectionable. With such adjustments and with the provision of water taps, public latrines and surface drains, a large proportion of the people may be allowed to remain in their present dwellings. Slum improvement rather than slum clearance should be the rule. The work done in Madras may also be studied.

8. Preparation of schemes of slum improvement may be undertaken by the Trust Board, and their execution may be entrusted either to the Trust Board or the Corporation as may be deemed convenient in each case.

9. Bulk of the cost of improvements of hutting grounds or cheris belonging to private persons should be recovered from owners. In public lands used as cheris, sites should be leased to the occupants on condition of their paying a moderate ground rent.

CHAPTER VIII.

Improvement and maintenance of Residential areas.

Concurrently with new housing development, steps should be taken to relieve congestion in the older parts of the City, and to ensure that the existing extensions are maintained properly.

2. Density of population in the more congested areas, which at present varies from 150 to over 500 per acre, should be ultimately brought down to about 140 per acre. This aim cannot be achieved by any direct measures of comprehensive re-development, save at very high cost

which cannot be thought of except in rare cases. The only feasible method is—

(i) to encourage the inhabitants to move into Extensions by providing needful facilities, and

(ii) to relieve congestion and effect feasible improvements by a process of "conservative surgery", keeping cost of acquisition at a minimum.

3. Houses which are insanitary or unsafe should be demolished and overcrowding rigorously abated under powers vested in the Corporation authorities. Resulting open spaces should be reserved for civic purposes, *e.g.*, for construction of school buildings, maternity homes, etc., or for use as minor parks. If they are reformed into house sites, care should be taken to see that the buildings thereon conform to the standards of construction laid down for the area.

4. Existing extensions and areas containing bungalows in their own grounds, do not require any elaborate re-planning. Appropriate regulatory and precautionary action should be taken to prevent the extensions deteriorating in appearance and comfort owing to pressure on housing accommodation and increase of heavy traffic, etc. Other measures to be taken would include—

(i) defining alignment of and prescribing the building line of houses for all important streets,

(ii) imposing suitable conditions and restrictions in regard to the character, number, architectural features, height of buildings, purposes to which the buildings may or may not be appropriated, provision of sufficient open spaces, minimum width of frontage, etc.

5. It is not proposed, for the present, to plan or re-plan villages in the agricultural or rural belt beyond the Corporation limits, except as regards lands included in the existing City extensions or other new City extension schemes undertaken in future. It will be sufficient if, in respect of these villages, the embargo on conversion of agricultural lands for building purposes (except with

permission) is strictly enforced and applications for construction of individual houses and private layouts are carefully scrutinised and work supervised during construction. Immediate problem in respect of these villages is the prevention of unlawful building, comprehensive development being kept in view as a long range possibility.

CHAPTER IX.

Educational Institutions.

Approximate statistics have been collected regarding (1) the number of schools in the City and the Civil Station, which are at present in need of additional building accommodation and open space for playgrounds, etc., and (2) the additional schools that may have to be opened if Elementary Education is made compulsory up to 14 years of age.

2. The following standards of area to be provided for different types of schools are considered to represent *minimum* requirements.—

(*a*) High School (9 Sections) : 100 yards × 100 yards (1st Floor envisaged).
(*b*) Middle School (12 Sections): 100 yards × 100 yards (1st Floor envisaged).
(*c*) Primary School : 150 feet × 150 feet.

The above standards have to be kept in view in regard to School buildings to be constructed hereafter in the City and Extensions, but provision should be made for playgrounds on as liberal a scale as the availability of land may permit. In respect of existing schools in fully built up old parts of the City, the choice of sites is limited and attempts should be made to provide minimum requirements as opportunities offer.

3. As regards new areas to be developed as satellite towns or neighbourhoods, the following standards regarding the number of schools are suggested for a population of 10,000 persons :—

Primary Schools (Compulsory Education).

Number of children from 5 to 10 (six years of primary) ..	1,400	Six classes primary.
Number of primary schools, each school containing about 500 (2 sections in each class) ..	3	

Junior Secondary Schools.

11 to 14 (4 years secondary) ..	900	Four classes Junior Secondary.
Number of schools—each school containing about 450 each: (One High School for Boys and one for Girls)	2	

Senior Secondary.

Present Intermediate Course :
1 College for 3 units of 10,000.

4. In the Civil Station area, it is understood that it is difficult to find land to provide playgrounds, etc., for many of the existing schools unless the Military authorities are good enough to release some of the areas in their possession for this purpose.

UNIVERSITY INSTITUTIONS.

5. All these are more or less situated in a compact area, excepting the Medical School.

6. If the Central Jail is eventually shifted elsewhere, the requirements of the University as well as those of the Technological and Occupational Institutes for several years to come, could be met without much difficulty.

7. The requirements of the Medical School, which has to be not far away from the major hospitals, may be considered in co-ordination with those of the major hospitals and possible adjustments made.

CHAPTER X.

ADMINISTRATIVE AND COMMERCIAL ZONES.

Administrative Zone.

1. The Administrative Zone extends from the Indian Institute of Science in the north-west of the City to Agaram Plain in he south-east. Affording as it does an almost continuous stretch of open space across the width of the City, it is a valuable asset.

2. It is desirable to shift the Soap Factory and the Central Industrial Workshop to Rajajinagar Industrial Suburb.

3. The Central Jail may be shifted to a suburb of the City or to some other place beyond the City. When Bellary becomes a part of Mysore, the Central Jail at that place might be sufficient to meet requirements.

4. Only central administrative offices of the State and Union Government offices may be located in this zone and other purely local offices may be gradually shifted to the suburbs.

5. Essential requirements of Military authorities in the area contiguous to the public offices may be examined and such of the lands as could be spared may be transferred for civil purposes.

6. The shifting of the Race-course to the outskirts of the City may be kept in view.

Commercial Zone and Shopping Centres.

1. The old combined commercial and residential areas of the city are very thickly populated with a density of 150 to 500 per acre and require urgent re-planning.

In this area it is proposed that as buildings become unsafe for use owing to natural deterioration, they may be ordered to be dismantled and the land acquired, until the housing density is sufficiently thinned.

2. It is recommended that open spaces, 200 feet × 300 feet or 400 feet, be created half-a-mile apart by acquiring and demolishing buildings in suitable places, and equipped as women's and children's parks. It is believed that these projects could be financed to a substantial extent by betterment levy on properties adjoining the parks.

3. A shopping centre for Basavanagudi and other southern extensions may be developed in the area bounded by Yediyur Tank on the south, Kankanhalli Road in the west, South End Road, Basavanagudi, on the north and IVth Main Road of Jayanagar on the east.

4. New Tharagupet, south of Mysore Road, may be extended to the north of the road to relieve congestion in this market area.

CHAPTER XI.

Open spaces and recreational facilities.

1. Care should be taken to preserve the existing open spaces belonging to the Government or the Corporation and to prevent their conversion for building purposes.

2. Improvements to Lalbagh : The private lands and houses to the west of the Lalbagh on Krumbiegel Road may be acquired and added to Lalbagh.

3. Sankey's Tank : (*a*) The tank bed and a belt immediately adjoining the water spread may be preserved as an open space.

(*b*) The land below the tank may be developed as a park.

4. Dharmambudhi Tank : The tank bed may be preserved as open space, as it is a very suitable place to hold open air meetings and exhibitions.

5. Kempambudhi Tank: The revenue lands betwee the tank water spread and the surrounding roads may b acquired and developed as a park.

6. The area bounded by Jayachamarajendra Road, Mavalli Tank Bund Road, New Mission Road, Lalbagh Road, Monkey Thope Road and Hosur Road may be preserved as agricultural land.

7. The following areas may be preserved as open spaces :—

(i) Bull Temple and its surroundings.
(ii) Mount Joy Hill and its surrounding areas.
(iii) Gavipur Temple and its surroundings.
(iv) Jakkarayanakere bed.
(v) Ulsoor lake and its surroundings.

8. No Government land, both within the Corporation limits as well as in Greater Bangalore, should be permanently alienated unless there is definite advantage accruing to Government by doing so.

CHAPTER XII.

Military Lands.

A large extent of land of nearly 13 square miles in the Civil and Military Station was assigned for purposes of a Cantonment in 1881. Several other areas have subsequently been placed at the disposal of the Military for temporary use during war-time in various parts of the City. The Mysore Government have always maintained that the lands in the possession of the Military authorities are far in excess of the extent actually needed for their purposes, as evidenced by the large number of grants made by the then Military authorities, from time to time, to civilians for non-military purposes.

2. The integration of the State Forces with the Indian army has resulted in a new sizable and separate block of land and buildings having gone over to the possession of the Military on the north-west, in addition to its already extensive possessions on the eastern side. The Military Grass Farms occupying an area, it is believed, of some 1,200 acres are a relic of the days of horse-mounted cavalry and with the mechanisation of cavalry units, the reservation of large blocks of land nominally for this purpose seems to have no justification at present. There is a great dearth of suitable land for use as playgrounds and for other necessary civic needs in the Civil Station area and any release of surplus land by the Military will greatly help to solve the difficulty.

3. It is therefore recommended that—

(1) A detailed investigation may be made by a small Committee (consisting of representatives of the Defence Services, the State Government, the Bangalore Corporation and the Bangalore City Improvement Trust Board) of the areas that are really required for Military purposes and of those that could, without inconvenience to Military interests, be released for civilian use.

(2) In any case, the land in Agaram plain, which is absolutely necessary for making satisfactory arrangements for disposal of drainage, should be got released in the interests of the health and sanitation of the City.

CHAPTER XIII.

Communications and Transport facilities.

Bangalore forms the centre of the road and rail systems and of Air services of South India. A total length of about 30 miles of trunk roads (two of which are now designated National Highways) lie within the limits of the Corporation.

2. The internal road (or street) system of the city consists for the most part of short lengths of road laid out on a rectangular pattern, and there are also about half a dozen main roads which run north and south or east and west. Of these the longest, from Basavanagudi to Hebbal, traverses the whole length of the City and forms the axis of its road system. A few roads formed or improved in recent years have an overall width of more than 75 feet and in two instances (one road in Jayanagar and the western road of Wilson Garden Extension), provision is made for boulevards to segregate traffic moving in opposite directions. But, generally speaking, the roads are narrow, more particularly in the older parts of the City and Civil Station, and it is not possible to lay out footpaths on most of these. Till about 20 years ago there were only a few motor vehicles in the City. Their number has rapidly increased since, while an appreciable number from the mofussil run into and out of Bangalore every day. The number of cycles also has increased considerably. As in other Indian Cities, the motor truck is displacing the bullock cart and the jutka is giving place to the motor bus. Road hazards are on the increase and call for an intensification of measures of safety.

3. The long range solution of the problem would be to provide new roads to meet the changed conditions of traffic and remodel existing roads to serve the same purpose.

4. Trunk roads both at the City approaches and in some sections within the city are too narrow for the growing volume and variety of traffic, and there are several bottlenecks in the City on the different trunk roads. It is suggested that a bye-pass road of requisite width skirting

the City and intersecting all the trunk roads be constructed. This would be a circular road running from Yeswanthpur to Nayandahalli, Jayanagar, Madivala, Belandur, Krishnarajapur and on to Tumkur Road, *viz.*, Jalahalli.

This road being particularly useful for Military transport also, the Government of India may be expected to meet a portion of the cost.

5. Strict instructions should be issued to Revenue Officers and others concerned that no building development should be permitted on agricultural and other lands within a distance of 100 feet on either side of the road margin of Trunk Roads.

Other New City Roads.

6. Within the City area, a few new roads should be formed as indicated below :

(1) A new road may be formed or an existing lane suitably widened from the District Office Road to Silver Jubilee Road.

(2) Sultanpet may be linked up with Cottonpet, the road connecting them being extended so as to join Kemmannagundi Road.

(3) It is necessary to open one or two streets between East End Road (Visveswarapur) and Krumbiegel Road, through Mavalli.

(4) Three Link Roads at least between Malleswaram and the Industrial Suburb are necessary. One is now sanctioned.

(5) The question of opening B. V. Krishna Iyengar Road between Kempegowda Road and Chickpet may be pursued.

Road Improvements.

7. The central business parts of the City were planned and developed long before the advent of the internal combustion engine and the streets are much too narrow. Widening is very costly and the only improvements possible are removal of some bottlenecks, removal of encroachments, projections, temporary stalls and ugly

signboards. The pials in lanes, encroaching upon Municipal land must be removed. Every important road in the City and Civil Station must have a building alignment plan approved by the Corporation, and this alignment must be adhered to whenever building licences are granted.

8. One way traffic may be introduced on all important roads.

9. Overhead electric and telegraph lines in congested streets may be replaced by underground cables.

10. A list of roads to the improvement of which special attention might be devoted in coming years is given in the report.

11. A map of Bangalore showing the important features of a Master street-plan of the city is appended. If all the roads proposed therein are constructed and existing ones improved, quick transit from one part of the City to another would be possible and a short run from any congested locality would place a person on a road suitable for through traffic.

Traffic Circuses.

12. One way traffic circuses may be constructed at all junctions of important roads. The Circles may be of a minimum diameter of 200 feet with the traffic island of at least 75 feet diameter, 33 feet wide carriage way and 25 feet wide foot-paths. No shop and residential frontages should be permitted into these circuses.

13. A list of junctions of Roads which require immediate improvements is given in the report. Land in most cases is still unbuilt and if acquisition is delayed the cost may become prohibitive.

Parking.

14. Parking of vehicles on a carriage way reduces its effective width. If such parking is permitted at all, it should be strictly regulated. It is recommended that—

(i) In a business locality, no car be permitted to be parked at a place for more than half an hour, nor

allowed to be parked within 100 feet of corners of road junctions.

(ii) All big business houses and cinemas should be required to provide parking places for their traffic.

(iii) Public garages should be constructed by the Corporation or by private enterprise in busy centres, possibly on a commercial basis. (One is urgently necessary at Chickpet).

Air-Port.

15. The question of developing an Air-port at Jakkur as the Central Air Port for Bangalore should be investigated.

Railway

16. The Central City Railway Station is inconvenient and the approaches very unsatisfactory. It requires re-modelling with frontage to Dharmambudhi Tank Bund Road and with ample car and vehicular parks.

17. If traffic surveys justify, a circular railway round the City will be eventually a great help to develop the area round about Greater Bangalore. The following route is suggested :

Bangalore City-Nayandahalli-Basavangudi-Jayanagar-Madivala-Belandur-Krishnarajpur - Chickbanavar-Bangalore City.

18. The Bangalore City Goods Yard is in a congested locality and its present extent is insufficient to meet the mercantile needs of the City. A central goods yard near Yeshwanthpur to which the Broad Gauge line from Jalahalli could be extended, may be considered. Even if the project is not taken up immediately, it is essential that land should be reserved from now before it is built over. The area reserved should be sufficient to provide sites for warehouses being constructed.

General.

19. The above suggestions are based on the personal knowledge (of local needs) of members of the Roads Sub-Committee, and spot inspections made by them. It is however felt that detailed studies should be made and

estimates prepared in respect of the several projects recommended, and where necessary, traffic surveys should also be conducted before a concrete and workable scheme can emerge. The execution of the work may have to be spread over a period of years.

20. Reference is invited in this connection to the provision in Section 40 of the Madras City Improvement Trust Act, 1950, enabling the Trust Board to prepare what is termed a "Deferred Street Scheme", in cases where it is deemed expedient to provide for the ultimate widening of any street without having immediately to acquire all or any of the properties lying within the proposed alignment.

21. The following widths for different classes of roads are recommended :—

	Main Arterial and Shopping	Sub-Arterial	Residential
	Ft.	Ft.	Ft.
Foot-path ..	2×20=40	2×15=30	2×10=20
Carriageway ..	2×30=60	2×22=44	1×22=22
Centre Verg. ..	1×20=20	1×10=16	nil.
	120	90 or say 100	42 or 50 feet.

For main arterial roads, cement concrete carriage ways are best. Ten feet concrete slab paved footpaths are to be provided on these roads for pedestrians. In shopping streets full width of footpaths are to be paved.

On arterial and sub-arterial roads, two-way carriage ways are best for protection from the glare of opposing head lights and risks of collision.

CHAPTER XIV.

Bangalore Water Supply.

1. *Present Conditions.*

The present conditions may be thus summarised :—

(*a*) Population of the City : 8 lakhs.

(*b*) Daily receipt of water into the City : About 12 million gallons—10.8 million gallons from Thippagondanahalli and 1.3 million gallons from Hessarghatta.

(c) Rate of supply : 13 to 14 gallons *per capita.*

(*d*) Pumps installed in Thippagondanahalli on 16-9-1933 are about 20 years old and there are no stand-byes.

(*e*) Break-downs are becoming very frequent.

(*f*) Complete break-down is quite possible and if that occurs, Bangalore will be faced with a water famine.

Immediate action is called for to instal new pumps and stand-byes and to carry out the second stage works to ensure a supply of at least 16 million gallons which will give an average supply of 20 gallons *per capita* for the present population.

2. *Distribution system.*

(*a*) Distribution system of the City was originally designed for a population of 1,50,000 to 2,50,000. It has now to cater for a population of 8,00,000. Almost all the mains are totally inadequate.

(*b*) Improvements to the distribution system are estimated to cost about Rs. 130 lakhs as noted below :—

	Rs.
Replacing old and unserviceable mains ..	30 lakhs
New Feeder Mains	45 „
.. Service Reservoirs	45 „
Purchase of meters	10 „
	130 lakhs

(*c*) The Corporation Engineer has prepared a three-year programme of improvements costing Rs. 26.30 lakhs, for urgent works.

	Rs.
Replacing old and unserviceable mains	3.10 lahks
New feeder-mains ..	16.20 „
Purchase of meters ..	7.00 „
	Rs. 26.30 lakhs

The carrying out of these improvements is urgently necessary to improve the supply to some of the localities which are inadequately served at present. A further 5 or 10 year programme may be drawn up to execute all the remaining works.

3. *Proposals for the future.*

The following are the basic data :—

(*a*) Population target for Greater Bangalore assumed at 2 million people.

(*b*) Rate of supply at 30 gallons *per capita* per day.

Domestic supply including flush-outs	20 gallons
Industry	5 „
Fire protection, floating population, wastage, etc.	5 „
Total ..	30 gallons

(*c*) Total quantity estimated to be required ultimately is 60 million gallons per day. Safe yield from Thippagondanahalli Reservoir and Hessarghatta Reservoir is 16.5 millions gallons. Net extra quantity required ultimately will be about 45 million gallons.

(*d*) Sources to be considered are :—

(i) The Arkavathi Basin : Fully exploited already. This basin lower down Chamarajsagar, near Ramanagara, can at best supply 10 to 12 million gallons which can serve only for one or two decades.

(ii) The Pinakini Basin : This is not capable of meeting the demand.

(iii) Underground supply : An examination of records of a number of tube wells shows that the quantity available is negligible and cannot be relied on for the city water supply.

(iv) Any new sources selected should be capable of supplying ultimately 45 to 50 million gallons. The only such source is the Cauvery with its tributory, the Shimsha. The matter has been investigated by the

Public Works Department and a scheme is understood to have been submitted to Government.

The main points of the scheme are :—

(*a*) To construct a low lifting dam at Husgur on the Shimsha River into which Visvesvaraya Canal Irrigation Tract drains.

Lowest gaugings in summer at this place show that there is a discharge of 95 to 116 cusecs, giving a supply of 51 to 62 million gallons per day. In a very bad summer, if for any reason the quantity goes down, the required quantity could be pumped direct from the Anicut on the Cauvery near Sivasamudram.

(*b*) To pump water to the sloping hill near Channapatna where purification plant is to be located.

(*c*) From here pure water to be pumped to Southern Reservoirs of the City (Byrasandra and Mount Joy Reservoirs).

Total distance from Husgur is about 50 miles.

(*d*) The project could be developed in stages of 15 million gallons.

This is the only possible scheme which can assure safe water supply to Greater Bangalore.

The matter is very urgent. If the Scheme is not taken up at once, water supply of Bangalore is likely to become precarious within the next 10 to 15 years.

4. *Control of Water Supply System.*

The authorities responsible for the supply of water and its distribution are now as follows :—

(i) Development of water resources, filtration and pumping—

Financed and controlled by Government.

(ii) Distribution system in the City—

Controlled by Government but financed by Corporation.

(iii) Distribution in the Civil Station area—
Controlled and financed by the Corporation.

The dual responsibility devolving on the Corporation and the Government has not resulted in smooth and efficient work.

One statutory authority which may be designated " Bangalore Water Board " or " Bangalore Water Supply Corporation ", charged with the responsibility of supplying an adequate quantity of water and arranging for its proper distribution in the City is recommended to be set up.

CHAPTER XV.

Underground Drainage and Sewage Disposal.

2. The whole question of sewage disposal in Bangalore was thoroughly examined recently by a Special Committee appointed by Government, who submitted their report to Government in February 1951.

Taking into consideration the post-war development of the City and its possible expansion in the next 30 years, this Committee has recommended that—

(*a*) sewage be disposed by land irrigation after preliminary treatment by sedimentation in seven sewage farms, two Major and five Minor, as follows :

(1) Agaram Plain : For sewage from Koramangala and Chellaghatta valleys :—

Land required : 1,650 acres.

Quantity of sewage to be treated :

First Stage	7.5	million gallons
Second Stage	14.0	do
Third Stage	16.5	do

Out of the land available, 1,200 acres are vested in the Military authorities. Land irrigation is possible only if this land is made available and if the State Government could arrange to get the land from the Government of India. If this is not possible, treatment of sewage is to be carried out by Biofiltration at two sites, *viz.*, Koramangala Tank Bed and Chellaghatta Tank Bed.

Cost of treatment by land irrigation—

		Rs.
I Stage	.. .. ..	47 lakhs
II Stage	.. .. ..	17 „
III Stage	.. .. ..	4 „
	Total ..	68 lakhs

(2) Near Kenchenahalli on Mysore Road: For Vrishabhavathi Valley (Malleswaram, Seshadripuram, Srirampuram, etc.)—

Quantity to be treated

			Rs.
I Stage	.. 3 million gallons (including out-fall sewers)	..	29 lakhs
II Stage	.. 5 do	..	6 lakhs
III Stage	.. 7 do	..	3 „
	Total	..	38 lakhs

(3) Chennammanakere:—

I Stage	.. .1	million gallons
II Stage	.. .25	do
III Stage	.. .5	do

(4) Near Hanumanthapura (Munireddipalyam):

I Stage	.. .1	million gallons
II Stage	.. .25	do
III Stage	.. .5	do

(5) Madivala (for South Jayanagar):

I Stage	.. .1	million gallons
II Stage	.. .25	do
III Stage	.. .5	do

(6) Tavarekere:

I Stage	.. .1	million gallons
II Stage	.. .25	do
III Stage	.. .5	do

(7) North-West Industrial Suburb:

I Stage	.. 0.50	million gallons
II Stage	.. 1.0	do
III Stage	.. 2.0	do

Cost of these 5 farms (3 to 7):

	Rs.
I Stage—Rs. 14.00 lakhs+out-fall sewers Rs. 9 lakhs = ..	23.00 lakhs
II Stage	2.25 „
III Stage	2.25 „
Total ..	27.50 lakhs

Total approximate cost of disposal works:

	Rs.
I Stage	99.00 lakhs
II Stage	25.25 „
III Stage	9.25 „
	133.50 lakhs
	or say *134 lakhs.*

N.B.—The design period for the disposal schemes has been taken as 30 years and the work is proposed to be carried out in three stages.

The Special Committee has also recommended that the underground drainage in the remaining areas of the City and Civil Station be completed at a cost of Rs. 100 lakhs on a fifteen year programme.

3. The above proposals of the Sewage Disposal Committee may be accepted. They cover all areas now under development, and if further extensions and satellite towns are laid out to serve the needs of the employees of the Hindustan Aircraft Factory, the Indian Telephone Industries, the Machine Tools Factory, etc., independent schemes for sewage disposal will have to be provided therefor.

4. So far as the Koramangala and Chellaghatta valleys are concerned, the only land available for treatment of the sewage is the Agaram Plain, which is vested in the Central Defence Ministry. The State Government should make every effort to persuade the Government of India to make this land available in the interests of the public health of the City.

5. The Sewage Utilisation Officer of the Government of India has suggested that only land required for locating the treatment plant need be acquired and that the preliminarily treated sewage effluent may be sold to the cultivators at reasonable rates. This method may be tried as it will save acquisition cost.

6. It is understood that the Government of India has a scheme to issue loans to the State Government for utilisation of sewage in the interest of the Grow More Food Campaign. Full advantage of these loans may be taken. Further, Bangalore is an important Military Station and large areas in the City are vested under the control of the Central Government and it is reasonable to expect that Government in the Defence Department to contribute 1/3 the cost of Disposal Works.

7. It is understood that the Bangalore Corporation has under consideration a three-year programme prepared by the Corporation Engineer, estimated to cost Rs. 20.70 lakhs, for completion of certain works and extension of drainage to other areas of the City and Civil Station. The works included in these schemes appear to be urgent and it is hoped that the Corporation will be able to push through the programme.

CHAPTER XVI.

Outline of a Master Plan for Greater Bangalor

The present population of Bangalore is about lakhs and it will not be long before it would reach th figure of one million, and this is the *minimum* populatio to be provided for in any City plan for however short period. In spite of efforts to divert activities—industria administrative and military—to other centres as far a possible, it may not be possible to hold in check the centripetal forces which bring an inflow of population into the City every year. It is therefore proposed to take a population of 1 million as the basis for immediate City Planning and 2 millions (which may be reached in 50 to 80 years) for long-range purposes.

2. The following target figures of residential density are proposed to be kept in view :—

	Density per acre	
	Gross	*Net*
1. Older parts of the City and Civil Station	143	200
2. Other Suburban areas (existing extensions)	94	150
3. Neighbourhoods and Townships, to be formed in future	63	100
4. Rural areas in Greater Bangalore ..	33	50

These target figures will help in determining priorities for thinning out high density pockets.

3. With regard to the city boundaries, action is suggested as follows :—

(i) The areas of Rajaji Nagar and Jayanagar Extensions beyond the Corporation limits and a few other areas shown in the Plan of Greater Bangalore, may be included within the limits of the Corporation.

(ii) A belt of a land about a mile wide all round the above limits may be preserved as a green belt—in which no further building should be permitted except in rare cases where it may be found absolutely necessary.

(iii) The jurisdiction of the Trust Board is now fixed as up to 3 miles of the Corporation boundary—a somewhat imaginary line which cannot be easily determined on the ground. It is suggested that the villages coming more or less within the sphere of Greater Bangalore be specified by name.

4. The main features of city development envisaged in the rough outline of a Master Plan are recapitulated below :—

The existing pattern of the City, which would be essentially preserved, consists roughly of 4 zones :

(*a*) *Administrative Zone* :

Includes the area occupied by the Central Offices of Government, areas vested in the Military authorities and the University centre. In this area are situated—

(i) The Government Soap Factory,
(ii) The Central Industrial Workshop,
(iii) The Central Jail.

The first two should be shifted to the Industrial Suburb, and the Central Jail to a Suburb in the City or to another town, *e.g.*, Bellary.

The Jail grounds when released and other private properties in this area (to be acquired as opportunity offers) would be available to the University and satisfy its needs for some years to come.

(*b*) *Commercial Zone.*

A. *City* : South-west and north-east of the Administrative Zone, are the present combined commercial and residential areas with a high density of 150 to 500 persons per acre. They are the oldest parts of the City urgently in need of re-planning. It is necessary to reduce the congestion to a gross density of about 140 per acre.

The site of Bamboo Bazaar (to be shifted to Magadi Road) would supplement Chickpet and Avenue Road as a subsidiary shopping and business centre.

B. *Civil Station* : The area surrounding Russel Market is the present commercial centre in which conditions are similar to those in the City commercial area. The area between the Market and Cubbon Road and that between the South Parade and Residency Road might gradually become a business zone.

(*c*) *Industrial Zone* : A *Within the Corporation limits* :

Area north of 18th Cross Road, Malleswaram, and west of—

(i) Road parallel to Railway line in Malleswaram,
(ii) Subedar Chattram Road,
(iii) Platform Road,
(iv) Aralepet Road,
(v) Mysore Road,
(vi) 9th Cross Road, Chamarajapet,

may be described as the industrial region. The three big cotton mills employing about 12,000 persons, as also many other industries are in this region. The City Improvement Trust Board has proposed an extension to the

west of this region. All new industrial units (small and medium) should be accommodated in this zone and existing industries encouraged to shift there. No further permission should be given to start new industrial concerns in residential areas or expand those already established there—with the exception of a few industries (using less than 5 H.P.) catering to the needs of the local community, *e.g.*, small flour mills, laundries, repair workshops.

Industrial Zone B : Area between the Broad-gauge Railway lines to Hindustan Aircraft, Ltd., and Jalahalli and the proposed Circular Road, to be reserved for any new large scale industries.

(*d*) *Residential Zone* : Comprising—

(i) Older and congested parts of the City and Civil Station—to be improved and thinned out gradually to a density of 140 persons per acre (gross).

(ii) Existing Extensions, including areas containing bungalows standing in their own grounds. Regarding these, strict attention to be paid to maintenance and prevention of over-building. Residential density not to exceed 94 (gross).

(iii) Areas in which slums have been improved.

(iv) Satellite towns laid out on modern principles of town planning with due provision for open spaces, schools, etc. The towns to be physically separate from each other and from built up areas of the city.

Satellite Towns in immediate contemplation :

(i) A town between Madras and Dommalur Roads towards east of Hindustan Aircraft Factory (for employees of that Factory, and other industries that may be started in the vicinity),

(ii) A town near Krishnarajapur (for employees of Indian Telephone Industries),

(iii) One on western side of Bangalore-Bellary Road, north of Hebbal (for employees of Machine Tools Factory),

(iv) & (v) Two towns between Banswadi and Tannery Roads, north of Jalahalli Railway Line.

In addition to the above, there would be an agricultural zone comprising (*a*) agricultural lands within Greater Bangalore limits, (*b*) revenue lands within Corporation limits. In this zone, conversion of agricultural land to other uses should be prohibited, except with special permission which should be given only for well considered housing schemes or normal expansion of villages.

NOTE.—There would thus be a "continuous green background of open country" all round the City.

In this zone, areas suitable for brick-making and stone quarrying should be allotted within easy reach of the City's residential areas, and indiscriminate use of land for such purposes prevented. In all cases, regeneration of the quarry site after the working is exhausted should be enforced.

5. *Educational Institutions.*

University.—All University Institutions, with the exception of the Medical School, will be in the University Campus which will be a compact area including the grounds of the Central Jail when it is shifted elsewhere.

Schools.—As far as possible, sites will be acquired and buildings constructed, for the existing Middle and Primary Schools now in rented buildings, and for new schools to be opened. New High Schools and play-grounds will be located in available open spaces, including those military lands which could be spared for the purpose.

6. *Open Spaces and Recreational facilities.*

(i) Small open spaces, at distances of half a mile from each other, will be created in congested parts of the City.

(ii) Agricultural lands in the city limits, including market gardens, will be maintained as open spaces and construction of buildings thereon prohibited except for special reasons.

(iii) The area around Mount Joy, all tanks containing a perennial supply of water, and a few other places which have a landscape value will be preserved.

7. *Communications.*—Main developments contemplated :

(i) Extension of the City Railway Station towards Dharmambudhi Tank ;

(ii) A new Goods-shed near Yeswanthapur ;

(iii) A broad Circular Road skirting the City for diverting traffic on the trunk roads ;

(iv) A few roads running north and south to relieve traffic congestion in the old city ;

(v) Development of the air-strip in Jakkur as a proper airport.

8. *Water-Supply and Drainage.*—The plan postulates satisfactory water supply (at the average of 30 gallons per head) and the extension of underground drainage system to all parts of the City.

9. *Zoning.*—The proposals for zoning and certain other features of the Master Plan are shown in the Map *Vide* Appendix.

CHAPTER XVII.

Planning Legislation.

The City of Bangalore Municipal Corporation Act, the City of Bangalore Improvement Act, and certain provisions of the Village Panchayets and District Boards Act and the Land Revenue Code, already provide the legal groundwork for planning and development. With some amplifications and amendments, these enactments may be found sufficient for the present to secure the limited objectives that we have in view.

2. The scope and objects of the proposed amendments are briefly noted below :—

(i) It is necessary that improvement schemes with detailed plans should be prepared for the whole area within the Corporation limits and some of the adjoining areas, to enable the exercise of proper planning control. To secure

the necessary flexibility in planning, Section 15 of the City of Bangalore Improvement Act may be recast and a new section may be added as Section 18-B, as indicated in the sheet appended.

(ii) Certain amendments to the City Municipal Corporation Act, Mysore Land Revenue Code, Mysore Village Panchayets and District Boards Act, City Improvement Act, already recommended to Government (in connection with the recommendations of the Committee for checking of unauthorised constructions) may also be given effect to.

(iii) Reference is also invited to the amplification of the City Municipal Corporation Act that has been proposed in Chapter VII in order to regulate hutting grounds or cheris.

(iv) The Mysore Land Acquisition Act may be amended, so as to permit the acquisition of land needed for house-building purposes on the basis of the use to which the land was actually put on the date of notification, without any reference to its potential value.

CHAPTER XVIII.

Concluding Observations.

The purpose of Town Planning is to utilise the available land to the best advantage of the community taking into consideration its various needs, and it includes :

(i) planning, *i.e.*, determining the use to which lands might be put ; and

(ii) administration, *i.e.*, control of land use in conformity with the plan.

In Bangalore, the City Improvement Trust Board has been, so to speak, the planning wing of the Municipal administration, while the Corporation and its officers constitute the administrative wing. With regard to those parts of Greater Bangalore which are outside the Corporation limits, the Committee have suggested that the Trust

Board should be not only the planning authority but to a limited extent the administering authority as well.

2. The report indicates in broad outline the manner in which areas of land might be allocated for agricultural, residential, industrial and business purposes so that their future development may be regulated in conformity with the relevant purpose. The proposals, though specific in some cases, are necessarily of a general character in others. They should be worked up into concrete schemes of improvement for each unit of area. The Trust Board should immediately take up the detailed survey of the different parts of the city and prepare for each unit or block a plan showing the present layout and land use together with a scheme of improvements considered feasible and appropriate for the locality.

3. It is desirable at the same time to prepare and make arrangements to maintain up-to-date a Record of Rights for all house properties and open spaces in the Corporation area. For agricultural lands coming within the scope of Greater Bangalore, a Record of Rights is already available (except for a few villages) and is presumably being maintained up-to-date.

4. To enable the Trust Board to prepare plans of development within a reasonable time, it should have an adequate staff including one Assistant Engineer specially conversant with the principles, technique and law of Town Planning. To ensure continuity of work the Board should also be given a suitable annual grant for the next 4 or 5 years, which should be additional to appropriations to be made, from time to time, for special schemes such as new extensions, etc. (In Madras, 2½ lakhs of rupees is placed at the disposal of the City Improvement Trust every year from Corporation Funds, an equal amount being contributed from State Funds. Similar arrangement—though the amount may be smaller—may be made here).

5. The powers now vested in the Corporation in regard to planning administration and control are not exercised effectively. Strict administration and control of land use cannot be secured unless the decisions of the

executive head (Commissioner) in such matters as grant of building licenses, regulation of streets, prevention of over-crowding, etc., are made final. If they are liable to revision by the Standing Committee or by the Corporation, there is no certainty that planning regulations will be strictly adhered to and non-conforming uses adequately and promptly dealt with.

6. For success of Town Planning, public co-operation is also essential. Democratic institutions function at their best only against the background of strong and well informed publi opinion. The efforts of Ratepayers' Associations and other voluntary organisations which are taking a keen interest in the Municipal Administration of the City should be encouraged. In a recent address at the Bangalore Literary Union, Sir M. Visvesvaraya has pointed out that in the western countries it is clearly recognised that many sided development of a modern city is largely the responsibility of its own citizens and that voluntary organisations are playing an increasingly important part in many spheres of the city life. He has suggested that arrangements should be made for civic agencies or associations to carry on a continuous investigation into the city's affairs and offer suggestions leading to improvements, and that an Institute of Municipal Research may be established as a purely non-official organisation supported entirely by private funds. The above suggestions are commended for the serious consideration of the authorities and the citizens of Bangalore.

7. In the terms of reference, the Committee have been asked to indicate roughly the financial implications of their proposals. They have endeavoured to do this in cases where necessary data were readily available, as for instance, in the case of water supply and drainage schemes. On most other matters no estimates of costs could be prepared without detailed technical investigation. Even in regard to water supply and drainage, the estimates were prepared on a rough and ready basis years ago and will have to be thoroughly revised before practical action. For the same reason, added to extreme uncetainty as to the extent of the financial resources likely to be made available by the State Government for the

improvement of the city, the Committee refrain from arranging the proposals in any elaborate order of priority. But on the principle of first things first, immediate attention should be given to the following matters :—

1. Augmenting supply of water from the Thippagondanahalli Reservoir,
2. Improvement of slums,
3. Housing Schemes on an adequate scale for employees of the Hindustan Aircraft Co., the Indian Telephone Industries, the Machine Tools Factory and the new factory proposed near Jalahalli for manufacture of Wireless Equipment, besides the State-owned Electric Factory and Porcelain Factory,
4. Fixing street widths and building lines for important roads,
5. Enactment of legislation on the lines suggested.
6. Preparation of Block Improvement plans for the whole of Greater Bangalore.

APPENDIX.

[*Vide* Paragraph 2 (i) of Chapter XVII.]

AMENDMENTS TO THE CITY OF BANGALORE IMPROVEMENT ACT, 1945.

Section 15 may be recast as under :—

" 15. A Town Planning Scheme may provide for all or any of the following matters :—

(*a*) the laying out or relaying out of land, either vacant or already built upon, as building sites or for any of the purposes mentioned in this section ;

(*b*) the construction, diversion, extension, alteration, improvement or closure of streets, roads and communications ;

(*c*) the construction, alteration, removal or demolition of buildings, bridges and other structures ;

(*d*) the acquisition by purchase, exchange or otherwise, of any land or other immoveable property within the area included in the scheme whether required immediately or not ;

(*e*) the re-distribution of boundaries and the reconstitution of plots belonging to owners of property comprised in the scheme ;

(*f*) the disposal by sale, exchange, lease or otherwise of land acquired or owned by the Board ;

(*g*) transport facilities ;

(*h*) water-supply ;

(*i*) lighting ;

(*j*) drainage inclusive of sewerage and of surface draining and sewage disposal ;

(*k*) the allotment or reservation of land for streets, roads, squares, houses, buildings for religious and charitable purposes, open spaces, gardens, recreation grounds, schools, markets, shops, factories, hospitals, dispensaries, Government and Municipal buildings, and public purposes of all kinds ;

(*l*) construction of houses ;

(*m*) the preservation of objects and buildings of archæological or historic interest or of natural beauty or actually used for religious purposes or regarded by the public with special religious veneration ;

(*n*) the imposition of conditions and restrictions in regard to the character, number, architectural features and height of buildings allowed in specified areas and the purposes to which buildings or specified areas may or may not be appropriated; and the provision and maintenance of sufficient open space about buildings;

(*o*) the suspension, restriction or modification so far as may be necessary for the proper carrying out of the scheme, of any provision in the City of Bangalore Municipal Corporation Act, the Village Panchayets and District Boards Act or in any rule, bye-law or regulation made under the said Acts and in force in the area included in the scheme;

(*p*) the advance to the owners of land or buildings comprised within the scheme, upon such terms and conditions as may be provided by the scheme, of the whole or part of the amount required for the erection of buildings or for the carrying out of the works, alterations or improvements in accordance with the scheme;

(*q*) such other matters not inconsistent with the objects of this Act as may be prescribed."

2. The following section to be added as Section 18-B:

18-B. "From the date of the notification referred in section 18, sub-section (1) all owners of lands and buildings in the area affected by the scheme who propose to construct or reconstruct or in any way alter or add to buildings shall conform in every particular with the requirements of such scheme; and no building shall be constructed or reconstructed in any area in which building is expressly forbidden in the scheme, or which is reserved in the scheme for any purpose incompatible with building."

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GREATER BANGALORE PLAN.

SCALE. 1" INCHES TO 1 MILE

(G)

PLAN SHOWING EXISTING AND PROPOSED CORPORATION BOUNDARIES AND GREEN BELT IN GREATER BANGALORE.

SCALE: ONE INCH OR 4 MILES

HEAVY TRAFFIC ROADS

PROPOSED ARTERIAL ROAD

PRESENT CORPORATION AREA

BOUNDARY OF THE FUTURE CORPORATION AREA

BOUNDARY OF THE PROPOSED GREEN BELT

BOUNDARY OF THE GREATER BANGALORE AREA

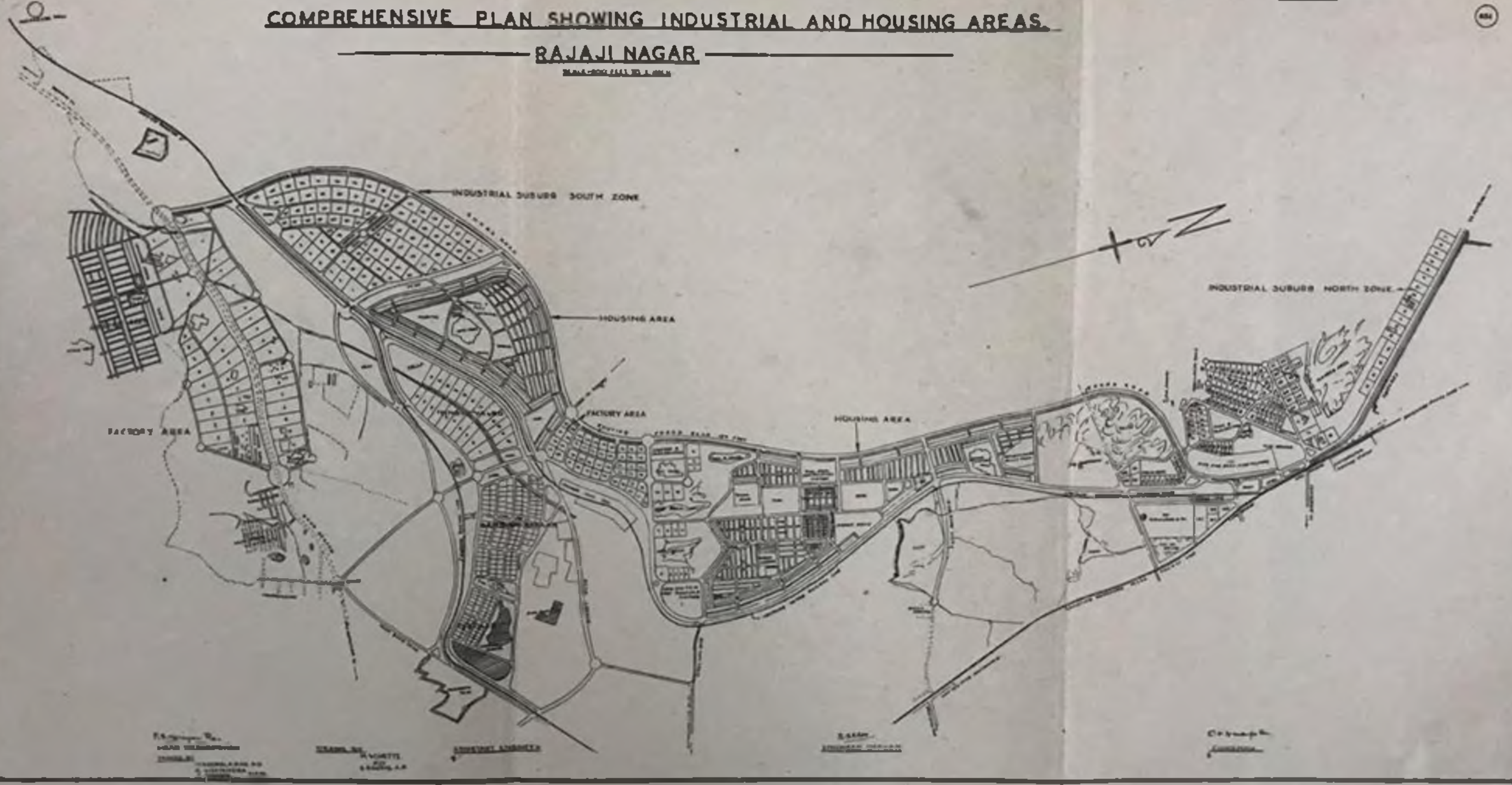
SECRETARY
BANGALORE DEVELOPMENT COMMITTEE
CITY IMPROVEMENT BOARD
BANGALORE

VICE-CHAIRMAN
BANGALORE DEVELOPMENT COMMITTEE

P.W.D. Govt. Press, Bangalore

COMPREHENSIVE PLAN SHOWING INDUSTRIAL AND HOUSING AREAS.

RAJAJI NAGAR



CITY IMPROVEMENT TRUST BOARD

PLAN OF BANGALORE SHOWING THE

SEVERAL LAY-OUTS CONTEMPLATED

SCALE - INCHES TO 1 MILE

REFERENCE

- TIMBER YARD
- BAMBOO BAZAAR
- TEXTILES
- FACTORY AREA
- RAJAJI NAGAR
- HOUSING AREA SOUTH ZONE
- GAYATHRIADEVIPURA EXTENSION
- VASANTHANAGAR
- EXTENSION BEHIND RAMAKRISHNA
- GOODSHED LAY-OUT
- GAYATHRIPURAM EXTENSION
- PROPOSED UNDER BRIDGE
- SULTANPET SLUM CLEARENCE
- SLUM CLEARENCE IN FRONT OF
- MAHARAJA STREET SARAJ
- LAY-OUT IN SUNKENA HALLI
- RAMACHANDRAPURAM
- LAKSHMINARAYANAPURAM
- MARUTHI EXTENSION
- LAY-OUT OF GAYATHRIMAHAL
- EAST & WEST
- MAHABURAL PILLAR RAJAJINAGAR
- 1ST LINK ROAD TO RAJAJI NAGAR
- 2ND LINK ROAD TO RAJAJI NAGAR
- SLUM CLEARENCE ANEPALAPPA GIRI
- SLUM CLEARENCE DHANRAJPET
- SLUM CLEARENCE BAKSHI GARDEN
- PROPOSED TERRACE GARDEN
- FACTORY AREA ON EITHER SIDE OF MYSORE ROAD

PARADE GROUND

PIPE LINE

INDUSTRIAL SUBURB NORTH ZONE

HOUSING AREA

INDUSTRIAL SUBURB SOUTH ZONE

HOUSING AREA

GANDHIPURAM EXTENSION

GAYATHRINAGAR

P.S. Venugopala Rao
HEAD DRAUGHTSMAN
DRAWN BY K.RAMDAS B.Sc.(Hons)

CHIEF ENGINEER-SECRETARY

C.M. Venkatappa
CHAIRMAN

FIG. No 313

JAYANAGAR

SCALE 2640' TO 1"

TO BANNARGHATTA

BANGALORE HOSUR ROAD

SANATORIUM AREA

TEMPLE

R. G. TOWER

SIDDAPUR VILLAGE

HINDI PRACHAR SABHA

LALBAGH AREA

TANK

LALBAGH WEST GATE

EAST END ROAD

PATTANAMBEGUDIARAD

SOUTH END ROAD

KANKAN HALLY RUINS

BANDESANDRA VILLAGE

TANK

SITES

GARDEN

PYTHON PARK

ROCK GARDEN

PLAYGROUND

SITES

SITES

SITES